The Builder.

VOL. XXXII.—No. 1659.

Ornamental Gardening.

HAVING in our last number commented at some length * on the historical portion of M. Alphand's elaborate essay on the above subject, we proceed to consider some of the suggestions in the latter part of the same essay, on the practical carrying out of the art of landscape gardening. In regard to "the choice of a style," the French critic generalises as to gardens very much as English landscape gardeners generalise in regard to architecture; he recognises only two styles, into which all varieties resolve themselves,—the *style régulier* and the *style agreste*. In choosing which style to adopt, we must be guided to some extent by the nature of the habitation to which the grounds are annexed. As a general rule, a symmetrical mansion should demand symmetrical gardens; but this will depend to some extent on the size of the house; for a small building, which does not impose its presence in a very marked degree upon the landscape, may go very well with a picturesque garden. This view, which we consider to be perfectly correct, may serve to explain also how it is that Greek temple architecture goes so well, as it unquestionably often does, with a more or less "picturesque" site. Were the Greek temple larger and more extended in scale, it would require the symmetrical site, as much as does the Roman palace. But the nature of the site itself should influence the design of the garden. If the site is totally flat, M. Alphand considers the "regular style" would be out of place, as the varied levels or platforms necessary for its effect could not be realised; but we can hardly accept this judgment unreservedly. It is possible to apply the regular system with success on a flat, or nearly flat surface; and, on the other hand, a site of very irregular levels may interfere considerably with the "symmetrical" gardener, and lend itself more naturally and with much less trouble to the irregular system. Where there is a gentle and uniform declivity of the ground in one direction, however, the use of terraces as a means of effect is at once suggested, and terraces, as a rule, go with "regular" gardening only. When considered in reference to the surrounding country, it is suggested that the regular garden derives additional effect from contrast with a landscape offering "strong reliefs, varied profiles, and an extended horizon." In the midst of such a landscape, the garden appears emphatically as a kind of gem set in the midst of the natural scenery; and it is certain that an irregular garden cannot successfully be combined with a landscape of the same character, as there is no principle of contrast, and the garden becomes little more than a space marked out by walls or fences from the rest of the country. Indeed, our own opinion is that the value of the irregular garden or park is almost entirely to be looked for in connexion with towns, and as supplying something of that rural scenery and effect which is not attainable in its natural form. Under other circumstances, the very idea of a garden as an artificially planned pleasure-ground suggests the idea of its being more symmetrical and more ordered than the landscape. The remark of M. Alphand, that the regular style demands much more extended surfaces than the irregular, coincides with this view. The irregular garden, in this light, may be viewed as the means of compressing rural effect into a small space, which has to be made the most of, and can only be so by disguising its small extent, and arranging the garden so that the whole shall never be seen at once, and the vista being decidedly but pleasingly checked in each direction, the fancy may be at liberty to imagine space and extent much beyond what is immediately visible. Indeed, in such a case pious frauds should be, and often have been, with excellent effect resorted to; glades and openings indicated which have the appearance of leading to more extensive areas, and so on. Where a pompous and dignified mansion, however, is placed in the midst of a varied and irregular landscape, the irregular garden may form a very pleasing link between the formality of the grounds immediately adjoining the building, and the picturesque aspect of the landscape; the garden appearing by this treatment gradually to resolve itself into "landscape" as it recedes from the symmetrical centre of the whole, the mansion.

In regard to laying out the *jardin régulier*, our author is opposed to the adaptation of any formal rules, such as the older French gardeners prided themselves on observing, and rather considers the perception of the artist, on the due consideration of the peculiarities of the site, is the only guide to be much relied on. "*Pour trouver les proportions d'une œuvre plastique, l'œil est seul juge.*" Some recommendations given, however, are, that any opening made in a plantation should be of such size in regard to the view which it affords, that the eye may take in objects enough to form a complete picture. "It is desirable also, in composing a landscape, to establish near the point of view groups of trees which will not only give a perspective scale, but by their shadows will serve to throw out the lights on the landscape. In every composition the dimension of an accessory part should not exceed that of a principal part."

All this, as M. Alphand observes, is simply following the rules of perspective. He does not give any suggestion for such curiosities of artificial perspective as those for which Shenstone, the poet, made himself and his small estate renowned at one time. Shenstone's great effort was an avenue, contrived so as to give an effect of distance within a comparatively short range of measured length. Large and heavy-foliaged trees were employed in the foreground; then the line of plantation was made to recede at each side, and where it re-appeared to the eye, trees of much smaller size and delicate tones of foliage were used, which kept on diminishing in size down to the extremity of the vista, where a dwarf summer-house, painted in "distant" tints, further aided the illusion. The lines of plantation also continually approached each other, so as to create an artificial linear perspective. The trick does not seem by any means worth the trouble; but it attracted sufficient attention in the poet's time to raise the jealousy of the Lytteltons, whose estate of Hagley adjoined Shenstone's boundaries, and who used to amuse themselves by the rather cruel expedient of taking their friends to look at his perspectives from the wrong end! To return, however,—this question of perspective will also determine the dimensions and proportions of the objects of art which may be placed as decorative adjuncts either near the house, or in selected parts of the garden. These will sometimes be found to have a different effect, or assume a different scale, when placed in connexion with the surroundings of their position, from what was expected. They will appear either too large or too trivial, and in such a case either the work itself must be altered or replaced, or the treatment of the ground in its vicinity must be altered, whichever is most easily accomplished. The *jardin régulier* being in fact a vast and complicated decoration, work in marble or stone, whether in the shape of steps, balustrades, or statuary, should be introduced with due regard to the total effect, and as a means of giving brightness and high lights at the salient points. A very important consideration is to arrange the lines of plantation so that the eye can readily follow and discriminate them (for in a regular garden nothing should appear confused or accidental, all should be manifestly the effect of design); and with this object it is desirable to avoid too complicated arrangements, which may look very well on paper, where they can be easily rendered distinguishable, but which are lost in execution. Another distinctive trait of the regular garden, is that the trees are grouped and disposed according to their height. This often leads, naturally enough, to similar species being planted together; a method, however, which is open to the objection of giving a monotonous uniformity of tone, and it is on this account found most satisfactory generally to group trees of the same height, but of different species and tint. So our author; but nevertheless we think that near the house, especially in a *domesne* which is intended to be above all things stately in effect, a symmetrical arrangement of trees of the same kind, especially such as have a marked character and considerable uniformity of growth, is very satisfactory and suitable in every way. By selecting the most formal trees for such a situation, and planting them in a formal manner (not, of course, clipping them into uniformity of outline, which is villainous), the vegetation is brought into connexion with the architecture, with which it seems, if one may so speak, to sympathise. On the other hand, in the "park," as distinguished from the "garden" (which latter is properly the portion immediately adjoining the house, and laid out in conformity with it), the employment of geometrical and regular lines and angles, in the arrangement of the alleys and drives, may often be dispensed with in situations where the eye cannot take in the whole from any point. Even a winding path need not be "shocking to the eye"; it is sufficient that two curves of it should not be visible at the same time from any point in its progress,—a dictum which will be found insisted upon by most landscape gardeners, old and new. Indeed, the art may be said to be strong in traditions which are handed down from one expert to another, and most of which have probably had their origin in some defect observed by the "landscapist," or complained of by his client, and thenceforth systematically condemned.

The "regular garden" is a composition governed by one predominant idea, which more or less fixes the relation and proportion of all the parts to one another at once. The "irregular garden" is less interdependent in its parts, allows of much more variety of detail, and is more a thing elaborated by degrees than a whole invented at once. Our author divides it into three principal elements for consideration, viz., the relief (or contour), the plantations, and the walks. The natural relief of the ground (if it is well marked) gives the indication of the leading points of the design, the positions for water and plantations; and though it may be necessary to

* See p. 942, *ante*.

modify the ground somewhat, it is best to do this as little as possible,—to leave the natural lines of the site wherever they are not really unsuitable or difficult to deal with. In regard to this subject, the author takes occasion again to condemn the practice of making, on a flat site, an artificially mounded and valleyed garden. As he had previously pointed out that the regular garden did very ill on a site of this kind, it would follow that those who live in a flat neighbourhood could have no ornamental garden at all, the art being "tabooed" for them at both ends. This is hardly fair, especially as it is just where natural beauty or interest in landscape is wanting that the ornamental garden becomes doubly valuable. We quite concur with M. Alphand as to the certain failure of any attempt to modify landscape on a large scale, but portions of a site may very well be artificially formed in relief in this manner, and partly enclosed or marked out from the rest, as a kind of special "pleasance." This was Paxton's method at Birkenhead (referred to in our last article); and this method avoids all appearance of an attempt at deception when the spectator is outside the portion thus treated, it being manifestly an artificial production, although when he enters it the aspect of nature may be found successfully imparted to it.*

The relief and section of the ground being ascertained or determined upon, comes upon that the consideration of the water and the plantations, which form as it were the basis and the crown of the acclivities respectively. The means of overflow for water must be duly considered; and we think more importance should be attached to the provision for a regular flow through the artificial lakes, however small. Sites on which parks are formed are not always those in which springs abound; oftener not, in fact; but if this resource is not available, a certain water-shed could be obtained, except in a very dry season, from the natural or artificial declivities of the site; and this should be conducted to one point and discharged into the lake, with a corresponding overflow provided at the other end. So little real good can be got out of stagnant water, that it is surprising this question of a through flow has not been treated more as a matter of course in writings on the subject. In regard to the plantations, it is desirable that each species of tree should be placed as nearly as possible in the sort of situation in which it would naturally or most frequently be found; and a certain relation between the height of the trees in the same plantations should be preserved. It does not do to place close to trees of a small growth those that will appear to crush or overpower them. As to the classification of trees, our French landscapist places it under four heads,—according to their height, form, colour, and the size of their leaves. The characteristic forms of nearly all trees he considers may be reduced under a few general heads, such as the "pyramidal" (the pine), the "parasol"-shaped (the cedar), the "spherical" (willow, horse-chestnut), the "falling" (weeping-willow), the "irregular" (oak, elm). These latter, we may observe, though the grandest of trees in themselves, and in the middle of a landscape, are among the least advantageous in ornamental grounds. They are too proud and independent chiefs in the vegetable kingdom to bend to the levelling will of the landscape gardener; for, as M. Alphand truly observes, it is not an object to give even to an irregular garden the aspect of nature, especially not of the nature immediately surrounding it. However picturesquely irregular, it is still a work of art, and should appear in the midst of the surrounding landscape as at least one remove nearer to the conventional. A further value in the plantations of a garden of this nature is in acting as blinds to prevent the spectator from embracing too much at one *coup d'œil*, and thereby to increase, by a kind of multiplication of effects, his impression of the size of the place. This is a *sine quâ non* in the treatment of a site of restricted dimensions, in which case the spectator should never be allowed to see the whole at once; on the contrary, every effort should be made, by artfully turning and winding the walks, to increase the impression of extent, and even to make the same plantation do double duty, from different points of view, and lose its identity. This may be, and has been, most successfully accomplished; but it is obvious that if the spectator is allowed, from any single point, to get a view of the whole, the enchantment, if one may call it so, is gone at once. On the other hand, we do not approve of breaking up a large site too much; for all the contrivance we have been alluding to is simply a means of compensating for the want of the greatest of all advantages, space and extent. In regard to this, landscapists generally are too fond of breaking up and dividing the water, especially in their parks, to give a *river* effect. This is the only thing that can well be done with it on a small site; but if the artist has the advantage of a large extent of ground, nothing is more effective than a broad extent of water, with distant plantations on the opposite bank; and this is too often ignored, and the beautiful aërial effects on an expanse of water are lost through the prevalent desire for "prettiness" on the part of the inventor, and a want of feeling for breadth of effect in nature which, to say truth, the practice of the art of landscape gardening rather tends to lead to.

We quite concur with M. Alphand in thinking that the accessories of fountains, statues, vases, and other decorative objects of a more artificial nature, which are considered a matter of necessity for the completion of the formal *jardin régulier*, need by no means be omitted from the irregular gardens; they are less necessary to it, perhaps, but they always heighten effect by giving points of light, as well as by contrast with the irregular lines and deep tones of the foliage. Maclise, if we remember rightly, once introduced a sculptured fountain into a view of the garden of Eden; this was hardly in place certainly, but it showed the artist's feeling in the matter. The last operation in the laying out of the irregular garden is the tracing of the walks. This M. Alphand regards as a very subordinate affair. "L'allée n'est qu'un itinéraire." It is nothing in regard to the total effect certainly, but it is of importance in regard to the views which those traversing the walks will obtain of that effect. A sinuous line is not to be commended except where unavoidable, but curved lines have a superiority over the straight ones, inasmuch as they change the spectator's position as he walks, in two directions, instead of in one only, and, therefore, afford more frequent changes of the point of view for every part of the scene. M. Alphand likes to see, in extensive lawns, the walks slightly sunk, or so lost here and there among shrubs, as not to come into the general view, and to convey the appearance that those traversing them are walking on the grass. The good taste of this appears questionable, especially as the result is to cut off part of the height of the figures; though, perhaps, the landscape gardener would approve of this as giving an increased scale to his scene!

Public gardens, near a town, are, the author is careful to point out, under different conditions from private ones; requiring larger and more numerous walks, and also such arrangement as not to interfere too much with the necessary surveillance on the part of park-keepers. The consideration of this part of the subject, however, we must defer to a further article, when we come to notice the account and illustrations of Parks and Promenades of Paris, which is the real object of the work before us, though the able and extended introductory essay seemed to afford an opportunity for going a little more generally into the subject in the first instance.

* In referring to Battersea and Birkenhead Parks in our last article, we had not noticed that M. Alphand also places them in conjunction, giving plans of them on two opposite pages. He does not, however, appear to recognise the essential distinction in their method of treatment.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At the ordinary meeting held last Monday evening, Mr. John Gibson, vice-president, in the chair, the following were elected Associates:—Mr. Colville Brown, of Long Melford, and Mr. William James Martin, of Reading.

Before proceeding with the business of the meeting,

The Chairman said that it was his regretful duty to inform those present of the death of Mr. G. Laing, who was a member of the Institute, and who was universally known and respected in the profession.

Mr. J. Macvicar Anderson (Fellow) read a paper "On the Orwell Park Observatory," to which we will refer hereafter. At the conclusion of the paper, Mr. W. Airy, C.E., son of the Astronomer Royal, who was present for the purpose, kindly explained the scientific portion of the work.

Mr. Airy commenced by stating that the instruments used in connexion with the Observatory at Orwell Park were a powerful equatorial instrument and a small transit one, the former being an adjunct to the latter. The transit instrument need not by any means be a large one. With regard to the height of the instrument, it was of course necessary that the instrument should look over trees in adjacent buildings, and right down to the horizon, this being an important condition for the purpose of observing planets and comets when near the sun, which was a favourite subject among amateur astronomers. There was a great inconvenience arising when the Observatory was attached to a lofty mansion. For the better support of an instrument, it was necessary that there should be proper columns, not in contact with walls or floors of the building. In the case of the Orwell Park Observatory, the instrument was supported upon one central pier or pillar, circular on plan, and carried up from the foundation to the height of 60 ft., in one solid and unbroken mass of brickwork, it being 10 ft. in diameter at the bottom. The difficulty was in getting a sure foundation for the instrument, free from vibration. Of course, such a column as that at Orwell Park tended much to be free from vibration. The dome being provided with a shutter, was so contrived that it opened easily. The entrance to an observatory, also, was generally a difficult undertaking, and was often contrived to be a matter of much inconvenience. With respect to the construction of the dome, it should be made to revolve, and it should be so contrived that it could not possibly get too hot in the sun: the skeleton of it should be made of iron. In the construction of that at Orwell Park, the ribs were of wrought iron, 4 in. in thickness. The movement was effected by means of a grooved wheel and endless ropes, which, acting on a circular rack on the top of the wall, caused the dome to revolve with perfect ease. Great care should be taken of these wheel boxes, so as not to let water or any fluid into them. The dome was of such a nature that it was impossible to put any ornaments on the top to relieve its appearance. According to the English method, the polar axis was carried on two columns, one at the north side, and one at the south side of the observatory. The advantage of this method was that the door of the observatory was comparatively free, and it was easy to get at the instrument in these positions. In the German system of mounting the telescope was carried on a single central column, and on a vertical standard, the advantages of which were lightness and ease of motion, which the construction demanded, the disadvantage being that the polar axis was generally short. As to the question of warming the observatory, it was of course out of the question to warm it while any observations were going on, or even before such observations, but for all that it was very advisable to have means at hand of warming the observatory when not in use, in order to preserve the instruments, and for the purpose of keeping the books from mildew, and also to prevent any dampness that might arise. In the case of the one at Orwell Park, Mr. Anderson had made some excellent arrangements with regard to this, by communicating pipes from the bath-room to the observatory. With regard to lighting the observatory, wherever there was gas he would certainly advise it to be introduced: it could not be applied to all parts of the instrument, but it certainly could to some. Wherever it could be applied, he was of opinion that it would be a great convenience. There was the gas utilised at Orwell Park. The arrangements made, too, there respecting the shutter connected with the observatory was also a great success.

Mr. Talmage said that astronomers generally would be exceedingly happy for any saving of labour that architects might introduce in the construction of an observatory. The manner of moving the shutter at Orwell Park was not, he thought, the best means that could be devised; but in the different observatories with which he was connected, he confessed that he had not used the rope very much. The construction of the shutter, however, was complete in itself; but it would be as well in every possible way to guard against rain and snow. The arrangements of the main stand of the pedestal, too, was of considerable beauty and utility. The telescope, also, should be constructed so as to be shifted about very easily. In the present arrangement at Orwell Park the work was one on which, architecturally considered, he would not venture an opinion; but for its use and for its purpose it was a most admirable arrangement.

Mr. Penrose was of opinion that the work at Orwell Park was interesting to the architect as well as to the engineer. With regard to the arrangements made for the mounting of the instrument, one could not but greatly admire them, as also could they admire the method of revolving the dome, upon a series of wheels, contained in boxes formed in masonry for the purpose. One could certainly have wished that the great column had had an independent foundation at Orwell Park Observatory; but Mr. Anderson had stated that this would not be productive of any difficulty in that respect, and the effect might prove to be quite satisfactory. He was very much interested in the contrivance by which Mr. Anderson had utilised the spaces round about the dome.

Mr. Hall stated that there were two very important observatories that were lofty buildings, viz., those at Oxford and Paris; and he would like to ask the question whether any effect from vibration had been noticed in them. At the Greenwich Observatory, at the time of the passing of the South-Eastern Railway Bill, there was great opposition to it shown on the ground that the vibration would affect the proper working of the observatory. There was great apprehension felt at the time, and he did not know if the point was of great importance to them; still, he would like to ask Mr. Airy for further particulars with regard to this subject.

Mr. Penrose said that he happened to live at Wimbledon, about half a mile from the South-Western Railway Station, and he often felt the vibration of the railway at that distance. When the railway was contemplated to be constructed near to the Greenwich Observatory, an experiment was made by Mr. Stone with a basin of mercury, and some sensible vibrations were felt owing to the tremours caused by the heavy luggage trains, this interfering in some respects with the observations that were being made.

Mr. Morris thought that if some meteorological records were kept with regard to vibrations in the interior of any building it would be as well. It would be interesting to know what would be the result, he maintained, of a large enclosed space of confined air upon buildings of the character in question. If Mr. Penrose would turn his attention to the vibratory action of the times and seasons upon such buildings, it might be, he was of opinion, productive of some very valuable results.

Mr. Airy said that in regard to the foundation of the transit instrument, it was not a perfect one; but he was quite satisfied with its present foundation, the transit instrument being not a matter of great importance in a thing of this kind. With reference to the question of vibration caused by trains, he would be very happy to lay before them the actual record of the observations which his father took in connexion with the Greenwich Observatory. Of course the effect of vibration was very different on different grounds. The Observatory at Greenwich was situated on a site of hard gravel, which, practically considered, was as hard as a rock. The vibrations at Greenwich from the adjacent railway were still felt; but they were now of an insignificant character. The railway company offered to do everything in their power to diminish the vibration, if allowed to approach nearer to the Observatory: they offered to run their trains on india-rubber wheels, and surround the station with peat bog; but he was glad to say that this was refused, and the great "railway king" had been driven out of the bounds of the Observatory.

DUTIES OF THE SANITARY INSPECTOR.

Some of the higher and more onerous duties of the sanitary inspector have not received that degree of attention at the recent scientific and social congresses which the nature of the subject deserves. The subject of pure air in manufacturing towns, for example, is one that concerns the whole of our population, since who can be said to be beyond reach of the evil influences.

The Public Health Acts in some measure operate as a check to the growing evil, both by its stringent enactments and its valuable proviso as to the inspectors, but it cannot be said that this Bill is rigidly enforced. The Smoke Nuisances Act has also been found grossly defective whenever its *irritant* or prohibitory powers are put in exercise; and, in fact, the whole of our recent sanitary legislation is nothing but a petty system of "meddling and muddling." It may be alleged that chemical works should belong more properly to the department of the medical officers of health; but we demur to this conclusion. All good inspectors of nuisances should possess an acute sense of smell — particularly of bad smells—and that in our opinion is enough to qualify them for the supervision of the most intricate chemical manufacture in the kingdom. Of course, we hold it true that bad smells of any description are all more or less injurious to health; yet how many honest and well-meaning people are to be found every day who boldly assert that knackers' yards, tanyards, dung depôts, and similar centres of noxious smells, are not only not injurious, but, on the contrary, are positively beneficial! We can also remember, some years ago, on one of the numerous sanitary explorations we made eastward, that we came across a catgut manufactory. "Ah, sare," said the little Frenchman who owned the establishment, "dis is a healthy vork, — dere is no cholera-morbus here!" "Very likely not," we replied, stuffing our nostrils, "the ground seems fully occupied." Such experiences will occur to the recollection of any one who has explored the slums of great cities. And let us here ask the question, who will persuade the *ghoulish* proprietors of the miserable hovels and charnel-houses which go to constitute the aforesaid slums, that these hovels are unwholesome, and unfit for human habitation?

The very same degree of colour-blindness and diseased "olfactories" seems to pervade the whole race of chemical manufacturers. They can demonstrate to their own entire satisfaction that their insufferably noxious vapours exercise a curative influence on the atmosphere rather than otherwise; and that their dingy pestiferous works are almost, if not altogether, as salubrious as the island of Madeira or the South of France. We need not go very far to find illustrations. Take a gas-work,—an exceedingly mild instance of the offence,—and if it be in a crowded and populous neighbourhood, just look at the effects it produces on the surrounding tenements in the course of twenty years. Properly manufactured coal gas may be made quite innocuous, or nearly so; but it is now grossly adulterated, like everything else, and accordingly we have to choose between the evils of inhaling carbonic acid or sulphuretted hydrogen, or other like perfumery at every stage of its manufacture. Alkali works, or more properly acid and alkali works, are tremendous sources of iniquity in regard to nuisances. What their action may possibly be, if unchecked in their operations, on human life, it is not easy to say with precision; but they have managed to destroy all the vegetation within easy distance. The copper works in Swansea have actually extirpated the verdure, and laid waste the whole surface of the beautiful valleys. Mineral acids and alkalies do not, however, originate the worst description of fumes. The products of the destructive distillation of coal-tar, a most flourishing species of chemical manufacture in our day, give out of their chimneys a most disgusting series of bad gases; and if we wish to get to the worst of all we must go to the works where organic substances, such as fat, oils, resin, paraffine, soap, and even candles, are transmuted from their crude materials into the genuine article of commerce.

The artificial manure works belong to this latter category, and we may say with great truth and propriety that the smells proceeding from the works in this case are, in every sense of the word, injurious. Foremost in the ranks of the offenders stands the process of dissolving bones by means of sulphuric acid. Our readers will easily understand this operation when we state that the bones are usually putrid; and in the chemical reaction which follows the action of the acid on the organised tissues, all the gases which flow from putrefaction are set free, and are of course promiscuously poured into the surrounding atmosphere. We will not attempt to describe the exceedingly nauseous smells which are so created; but this we fearlessly assert, that they can be nothing else than poisonous. In fact, they are poisonous more or less to that extent which they are diluted with pure air; and such a mixture of air just signifies, of course, a more or less contaminated atmosphere. We have smelt the monster as St. George did the fabulous dragon of yore, at least five miles off! We have known a freehold estate reduced 25 per cent. in value within a period of ten years, just on account of the unwholesome contiguity of these manure works. And yet a howl was immediately raised when it was attempted to put some stop to the abominations. "Oh, you are going to interfere with the interests of agriculture!" Of course the device was successful.

There are worse compounds, we may add, than dissolved bones made up in the form of artificial manures; but we need not dwell on them. Blubber and putrid oil, the carcasses of diseased animals, the refuse of slaughter-houses and triperies, the refuse of soap-works, paint-works, dye-works, and a multitude of other kinds of refuse, are all impressed nowadays into the service of agriculture. Whatsoever substance contains nitrogen will answer the purpose provided it be soluble in sulphuric acid; and sulphuric acid will solve almost anything.

One conclusion is plain enough. It is a well-ascertained fact that the whole of these chemical operations may be rendered perfectly innocuous. There are a good and a bad,—a right and a wrong principle underlying the whole processes at every stage. It is simply a question of expense. But then expensive manufacture signifies a reduction of profit. Hence the necessity of the Sanitary Inspector. A long and sad experience has taught the country that manufacturers themselves cannot be trusted to deal on the square with public health, wherever their interests are so directly involved. But the public health is the higher consideration in every respect. Accordingly these bad gases must be absorbed, the liquid poison must be deodorised, the solid contamination must be consumed. And here, we submit, lies one of the most essential and important functions of the Sanitary Inspector.

A PEEP AT SOUTH KENSINGTON.

The South Kensington Museum has put on a fresh and bright appearance, and that gloomy aspect in some of the corridors of which we have often complained has partly disappeared. The long passage on the west of the courts, which was so disagreeably dark, is now better lighted, and contains some very noble specimens of tapestry. Further improvements are in progress. We cannot but think that the Museum has gathered fresh life and vigour from the termination of the permanent International Exhibition, which, like a growth of ivy on a fig-tree, was starving and strangling that which helped it to climb.

The newest acquisitions made by this Museum consist in some fine specimens of pierced metal work from Persia. The oldest of these are of great beauty and delicacy, the arabesque work of the pattern being charmingly relieved by the removal of the ground. In some specimens, on the other hand, while the skill of the workman is undiminished, his taste has been sadly impaired by a departure from that long tradition of Eastern art which forbade the representation of the human figure by the sculptor. The struggle between the old and the new, the beauty of the true arabesque, and the atrocious vulgarity of the human figures, which are of unmistakably European origin, is highly instructive. On other specimens, again, it is China that is shown as the invader of Persia—odious Chinese figures squatting around the graceful foliage.

There is a feature of this institution which contrasts very pointedly with an occasion of complaint which has reached us, not unfrequently, as to two other of our great public museums,—that is, constant accessibility. It was only the other day that we heard from a foreign visitor to London that he had paid six visits to Bloomsbury, and found the gates shut against him each time. Of course, it may be said that the officers of the British Museum give notice of the times of closing, and that it is the fault of any one who goes there on a blank day not to have made himself acquainted with the proper time. But the question remains whether it is wise and fair to the public to adopt so complicated a system. Those of us who have occasion to visit the Museum on the blank days cannot discover any just cause for the closing. Again, the long vacations of the National Gallery are extremely vexatious to persons who visit London, perhaps only once a year, but unfortunately during the time selected for closing.

All that is done, or is said to be done, in these two establishments during close-time is carried on at South Kensington without excluding the public. We are not urging that one, or even two, students' days in the week are

unreasonable at the National Gallery; but the arrangement of free and sixpenny days appears to answer the purpose far better and far less vexatiously, than closing.

SOCIETY OF FRENCH ARTISTS.

The average of work in the ninth exhibition in the Society's rooms in New Bond-street, is not quite equal to what we have seen there before. In regard to landscape, however, the collection is strong. Corot is, as usual, largely represented. His most important work, "Dante and Virgil," on their way through the preliminary shades of the descent to Hades, is, in tone and size, a kind of companion to the "St. Sebastian" of last year, but can scarcely be called equal to it. The artist seems to be more at his best in one or two of his smaller works, as the "Canal Scene" (48), which, by the way, curiously recalls Constable. Daubigny is hardly fortunate in "The Thames below Greenwich"; but redeems himself in his "Banks of the Oise" (59), a work showing a splendid freedom and force of handling without the slightest exaggeration. His larger work, "The Cooper" (97), is a fine assemblage of thick, heavy, summer foliage, crowded in impenetrable masses. Dupré is powerful but obscure in his "Land Storm" (55). A fine poetic thing is the "Old Stone House" of Millet (52): desolate in the midst of a common, with a wind and a wild autumn sky to complete the desolation. "The Last House in the Village," by Laurens (39), shows an extraordinary effect of evening light on a snow landscape,—perhaps a little exaggerated,—unquestionably striking. No landscapes here will be looked at with more pleasure than those of Mdme. Cazin, who has been down among the villages and cornfields of Sussex, and from thence has brought us half a dozen pieces of genuine poetry, as charming in feeling as they are refined and delicate in the treatment of tone and colour. All are good: we should perhaps single out as the best, "Cross-in-Hand Mill" (18) and "A Lane in Sussex" (95), both charming in composition and the realisation of light in the sky, though in a perfectly different tone and manner. On second thoughts, we are not sure that "Cutting Hemp" (101) is not superior to these in power, though there is less in the subject. This lady's is a true and genuine talent, which seems to grow more ripe and complete each year. The late Georges Michel is represented by three landscapes, hardly equal in breadth and power to those which were placed here last year, except, perhaps, "Farm-house on the Banks of the Seine" (62), which is in his best manner.

Roybet's "Beer-drinker" (27), in breastplate and dirty orange scarf, and jerkin with tarnished gilding, his expressive features half elevated and half bemuddled by his potations, is a masterpiece; but there is no other figure-subject to which such a phrase could apply. Chaplin's "New Necklace" (104), a life-size sitting figure of a young lady in partial dishabille, shows fine and pure painting in the head and bust, but the lower portion of the figure is so awkwardly indicated under the drapery, that the young woman seems to be all knees. Madrazo's "Cup of Coffee" (87), a half-length (also life-size) is clever and telling, but, we fear, must be set down as undeniably vulgar. The portrait of Mr. Woolner, by Legros (66), is a fine, unaffected piece of work. The same artist's sketch of a lady (68), certainly clever, is not quite successful, and not pleasant in tone. Among smaller works in which figures are the predominating interest, Huguet's "Caravan" (91) and Benassit's "Reconnaissance" (117) may be mentioned; and there is a very clever though unpleasing thing by Degas, "Scène de Ballet" (9), representing two dancers coming down the stage: the action of the toe and working muscles of the leg in the foremost figure are admirably given; the plain features and thin scraggy arms are sadly realistic. We must not quit the exhibition without an admiring look at the numerous flower-pieces of Fantin,—fresh, bright, and real in texture and colour to an extent rarely seen on canvas.

Machinery on Sale.—Messrs. Jas. Wadham, Sen., & Co., issue, under the title "The Standard," a monthly list of second-hand and new machinery on sale. The twenty-seventh number of it now before us includes a considerable range.

WAIFS AND STRAYS OF LONDON.

It is remarkable what an amount of good may be done by one thoroughly earnest person working with determination in the right line. This is seen, to take only one case, in the result of the efforts made by Dr. Thos. Barnardo, at Stepney and Limehouse, for the rescue and aid of destitute children of both sexes. A young physician, he began his labours in this direction only eight years ago with but little external assistance, and now we find established in consequence, a Mission-hall, houses, and schools, in Hope-place, Stepney; a Home for Working and Destitute Lads, Stepney-causeway; Temporary Orphan Home, Stepney-causeway; a City Messenger Brigade, Stepney-causeway; Home for Neglected and Destitute Girls, Ilford, Essex, and Laundry and Workrooms, Carr-street, Limehouse; Woodchopping Brigade, Carr-street, Limehouse; New Branch Ragged Schools, Salmon's-lane, Limehouse; Bible, Tract, and Pure Literature Depôt, North-street, Limehouse; New Mission-hall and Coffee Palace, "The Edinburgh Castle," St. Paul's-road, Limehouse; and a Big Tent (seating 3,000 people), for summer use only, Rhodeswell-road. The Boys' Home is said to have rescued already some 400 poor London lads. The temporary Orphan Home will accommodate from forty to fifty little boys; and as a Home for orphan and destitute girls there is a house with twenty-five acres of land already provided. There are fifty-four girls here, and it is proposed, as funds come in, to build a number of cottages on the land, each one of which will contain some twenty girls under the care of a good motherly woman, who will train them for domestic service. The earnings of the wood-chopping brigade amounted last year to 3,165*l.*, as against an expenditure of 2,761*l.*; and the City messenger brigade took no less a sum than 1,650*l.* during the same period. About 112 persons are now engaged in the various branches of the work, of whom thirty-six are paid, the remaining seventy-six being volunteers. The financial statement from April 1, 1873, to March 31, 1874, shows 20,000*l.* on each side of it. Surely this is all very remarkable and very encouraging. A number of persons interested in the work are arranging for a sale of useful and fancy articles on behalf of these destitute boys and girls, which will take place on Wednesday and Thursday, the 16th and 17th of December, in the large hall of Willis's Rooms, King-street, St. James's-square, and if any of our lady friends feel disposed to assist in what we really believe to be a good cause, all they have to do is to send their contributions to Dr. Barnardo, at the Home for Working and Destitute Lads, Stepney-causeway.

ROMAN EXPLORATION FUND.

This fund is much in want of help at the present moment; and Mr. Parker says such another opportunity can never occur again. By the law of Italy all the property of the monks and nuns, or religious corporations of any kind, must be sold, and the money invested in the public funds, before the 1st of January, 1875. The great works of the new city on the hills are so far completed, especially in making the drains under the new streets, and the foundations of the houses even where they are not completed, that not much more remains to be done in the way of excavations in that quarter. But new streets have also to be made in the old quarter; one of these, which is much wanted, is to go from the south end of the Corso to the new excavations in the Forum Romanum. It is to be a wide, open street, and the gradients made convenient for carriages. The line of this street passes directly over the subterranean chambers of the great prison of the time of the kings, used also in the time of the Republic and of the Early Empire. These chambers are now cellars under houses at the foot of the Capitoline Hill, at the south-east corner. They have been rented by Mr. Parker for some years, and he has made important excavations and discoveries in them: all these he will be obliged to fill up unless he can purchase the property.

The Municipality are quite willing to deviate from the direct line of the street in order to save these interesting remains, provided that the proprietor of the property will act in concert with them; but they have to borrow money at 8 per cent. for all the great works they have to do, and they cannot afford to do so for archæological objects only. Mr. Parker has reason to believe that these cellars might be bought for 500*l.*, and the remains of this great ancient prison would thus be saved for generations to come. One friend, the head-master of one of the public schools of England, who was in Rome for a day only last season, and to whom Mr. Parker explained the matter on the spot, has sent him 100*l.* towards it; but most of his friends are wearied out with his continual importunity, not seeing the importance of the work that has to be done in Rome *now or never*.

The smallest contributions will be thankfully received, even shillings, remembering the proverb, "That many a little makes a mickle." The antiquities of the city of Rome are an object of interest to every educated person; it is only the ignorant who are indifferent about them, and Mr. Parker is amazed at the apathy which is generally shown in England on the subject.

THE ROYAL ACADEMY.

The next election of an Academician to fill the vacancy caused by the death of Mr. J. H. Foley will take place on the 9th of December.

On the 10th of December, the annual distribution of medals will be made,—the 10th being the anniversary of the Academy. This year it is only silver medals that are to be awarded to the various schools,—with the exception of a travelling studentship to an architect, with a gift of 100*l.*

EXCAVATIONS AT CISSBURY, SUSSEX.

Some excavations have been made at Cissbury, one of the most interesting of the Sussex chain of camps, and Mr. E. Willett last week gave an interesting account of the proceedings at a meeting of the Brighton and Sussex Natural History Society.

After alluding to the various strata through which the excavation was made,—viz., just below the surface-soil, a layer of loam; below this, at the depth of 5 ft., solid chalk and red earth; at 10 ft., large blocks of pure chalk; at 13 ft. a repetition of the red earth; and then another layer of chalk,—Mr. Willett said that at a depth of 17 ft. they came upon the mouth of a cave, and afterwards seven more were displayed to view. The caverns varied from 3 ft. to 5 ft. in height, owing to the roof giving way more in some places than in others; the width of each was undetermined, as in some instances the separation from one another was merely effected by a barrier of stalagmite, and had it been considered safe to move this, the whole series would probably have been found to be very nearly one large cave with several openings. The length of the longest gallery explored was 19 ft. One singular feature presented by the entrance to the galleries was, that they were all squared,—a fact which one of his (Mr. Willett's) friends had remarked showed a sign of high civilisation on the part of the excavators. With regard to the uses for which the caves were designed, there were several theories: a very natural one was that they were dwelling-places, if not for the whole year, at least during the winter storms, or as caves of refuge in time of war. He did not say this might not have been a secondary purpose; but he thought it highly improbable that, for either of these purposes, they would have gone so deep, for, had they done so, some traces of continued habitation would, doubtless, have been left. Another suggestion was that they were storage-barns for grain; but, if so, why should the shafts be filled up again so carefully? And how was the entire absence of anything of the sort accounted for? He was himself convinced, with Canon Greenwood, that the main purpose in view by the original excavators of the shaft and galleries was to obtain a supply of flint. The first objection was, why they should go so deep for flint when they could get it on the surface? The answer to which was that flint was much softer and more easily worked when freshly procured than when it had been dehydrated and weathered by exposure, and that for the manufacture of gun flints, which is still carried on in the little town of Brandon, in Suffolk, they procured their raw material at a considerable depth. As to the manufactured implements found, taking the bones first, they found that they were pieces of the antlers of the red deer, variously manipulated. They were in poor preservation; but there was one fair example of the excavator's instruments. This was an antler, measuring 11 in., which, stripped of all its tines, except the brow tine, formed a

powerful pick, and, when reversed, a hammer; it was, in fact, the prototype of the implement (in wood and iron), at present in use for the same purpose at Brandon. Another tool was manufactured from the top end of an antler. The handle in this specimen was much worn, but it was difficult to determine whether it had been intended for a pick or a drill. Then there were the tines, which, broken off for the more comfortable use of the pick, became useful implements.

The various objects found during the excavations will shortly be deposited in the Museum at Brighton.

CARBONIC ACID ENGINES.

Two or three notices on this subject have recently appeared in the *Builder*. I presume that the force in the prime-motors referred to is derived from carbonic acid when it has been compressed from its normal state of a gas into the condition of a fluid. This was, at any rate, the principle upon which Sir Mark Isambard Brunel, the Thames Tunnel engineer, endeavoured to make such an engine, at the instigation of Sir Humphry Davy, the great chemist. Davy was very sanguine about it, and remarked, among other things, that in working the engine a great accession of power would be gained even by the slight warmth which would attend by one's sitting on the vessel containing the compressed gas. But Dr. W. H. Wollaston, who was Davy's less popular contemporary chemist, and in some measure his rival, predicted that the gas without escaping, would gradually lose its elastic force. He arrived at this conclusion from some experiments he made in his usual singularly ingenious manner with simple means, and he was right, and Brunel's money, including costs of patents, was lost.

From my boyhood, I have always admired Wollaston's extreme neatness, and his adroitness in arriving at great conclusions by operating on very small quantities of matter. Once, when lecturing at the Royal Institution in Albemarle-street, he stepped up to a lady, and held some pungent salts for a moment to her nose. This caused a tear to trickle from her eye, and as it rolled down her cheek, Wollaston caught it, and analysed it, and showed the salts it contained, there and then, to his audience.

His method of making extremely fine wire for astronomical purposes, by constructing a compound rod of platinum surrounded by silver, in about the same proportions that cedar-wood encloses black-lead in a pencil, and then dissolving-away the silver by some acid which had no effect on the remaining platinum, which was left still in the same proportion after the two metals had been drawn out together into an excessively attenuated compound wire, was an idea which may be termed sublime, if sublimity can be applied to such things.

When Davy was exciting the wonder of all scientific London by results obtained with his galvanic batteries, made of plates of metal alike of enormous size and number, Wollaston met a friend in the street, and told him to observe how he could do the same thing in a much less compass. So drawing him into a dark corner, he took out of his waistcoat-pocket a tiny bottle and a thimble, and emptying the contents of the former into the latter, a platinum wire was by it instantly made white-hot. This very battery, preserved as a relic, enclosed in a red morocco case, was shown to me in 1867, by Mr. Ulex, an analytical chemist in Hamburg.

This habitual admiration of Wollaston has often led me to copy his spirit in a humble way, and with less important results, in my own profession. Thus, twenty years ago, when beginning aquarium work in Clerkenwell, London, I had little sea-anemones in small glass jars of artificial sea-water, and when the creatures obstinately remained closed, and could not therefore be induced to take food, I placed one hand over the top of the jars, one at a time, and with the other gave the water a brisk agitation, on which the zoophytes soon opened and were fed, exactly the same as they open in the sea, and from the same causes, the excitement of increased oxygenation. I discovered this by accident, from the slight motion which the water acquired by being carried across a room. This was not exactly what is called "a tempest in a teapot," but it was a veritable storm in half-a-dozen ounces of factitious sea water, and was in some respects attended by a storm's results.

I should not like however to imitate Wollaston in one thing,—his extreme reserve as to allowing any one to see his modes of scientific operation in private. Once, when an acquaintance found his way by stealth into Wollaston's laboratory, the latter, with a severe air, said, "Sir, do you perceive this furnace?" "Yes," was the answer. "Then," exclaimed the chemist, "make it a profound bow of farewell, for most assuredly you will never see it again."

In a late number of the *Builder* my appointment as naturalist to the Royal London Aquarium Society at Westminster, was announced. I wish to add that I shall still retain my post in the Crystal Palace Aquarium, the generosity of the Directors of both institutions enabling me to serve the two conjointly. W. A. Lloyd.

YORK MINSTER RESTORATION AND RE-OPENING.

The south transept of York Minster which is being restored at a cost of nearly 20,000*l.* having been partly completed, re-opening services were held in the cathedral, on Tuesday and Friday last week. About 150 clergymen took part in the procession up the nave. The restoration has been carried out according to the plans of Mr. Street, and the transept has been closed for three years in order that the alterations might be effected. This transept is the most ancient part of the Minster, the exact year when it was commenced being 1215. Through age the transept had become quite dilapidated and unsafe. The clearstory walls were sadly out of perpendicular; and in addition to this, it was found that when erected they had not been substantially built. The inside portions of the walls had been filled in with stone clippings entirely without cement. A different method has been adopted in the rebuilding of these walls. They are of solid masonry, laid in with Portland cement, and tied by wrought-iron bars running through each of them from the south front to the lantern tower. The Purbeck marble shafts are mostly new. On the roofs the slating has been removed and sheet lead substituted. The groined work has been stripped of the whitewash which covered its beauty. The central roof of the transept has a lierne vault. The lath and plaster in the spaces between the groining have been taken out; and in their place oak boarding has been fixed; and the bosses, including several combinations of foliage, such as oak, thorn, maple, and vine leaves, have been gilded and the back picked out in vermilion. There are also two lines of vermilion running parallel on each side of the groining, and along the ribs of the ridge throughout the whole of the ceiling. Although a great portion of the work of restoration has been effected, much yet remains to be done; and it is expected that fully two years will elapse before it is finally completed. Of the total coast about 5,000*l.* still remain to be obtained.

THE STOCKWELL GREEN BUILDING SCHEME.

It appears highly probable that the project for building upon Stockwell Green, which has already been noticed in the *Builder*, will be carried out, as nothing seems to have come of the public meeting held two or three weeks since, nor have the committee appointed at that meeting made any report as to their interview with the Metropolitan Board of Works on the subject. Meanwhile the preliminary steps for destroying the Green have been taken, workmen being last week engaged in removing the trees, with the view, it is stated, of the site being immediately prepared for the erection of houses. This proceeding seems to have been regarded with much concern by the residents in the neighbourhood, who have drawn up and signed a second memorial to the Board of Works, urging them to step in and, if possible, prevent the Green from being broken up. It appears now to be feared that in order to secure the Green it will be necessary to compensate those parties who have purchased plots from Mr. Honey for building upon, in addition to paying that gentleman the 4,000*l.* which he gave for the Green, although it was understood that the lots were let and the contracts entered into subject to their becoming inoperative by the Metropolitan Board taking possession of the Green. It is likely that a few days will finally decide the question whether the Green is to remain as an open space for recreation purposes, or be covered with houses.

PURCHASE OF SITES FOR MORE NEW BOARD SCHOOLS IN THE METROPOLIS.

In addition to the new Board Schools,—about 100 in number,—which have recently been erected and opened in different parts of the metropolis, the London School Board have given notice of their intention to purchase by compulsion 106 more sites for the erection of a further number of new schools, or for the enlargement of existing playgrounds, and the improvement and extension of existing school-houses. The number of actually new schools which the Board propose to erect, in addition to those already opened and in progress, is 70, whilst the sites to be purchased for extending playgrounds and enlarging existing schools, are 30 in number. The total area covered by the sites to be compulsorily purchased is 1,451,069 ft., or about 34 acres in extent. The number of sites scheduled in the county of Middlesex is 56, of which 5 are in the Chelsea division, viz., 2 in Chelsea, 2 in Kensington, and 1 in Hammersmith. The sites in the Finsbury division are 13, of which 2 are in St. Giles-in-the-Fields, 3 in Clerkenwell, 2 in St. Luke's, 2 in St. Andrew's, Holborn, 3 in Islington, and 1 in Saffron-hill. In the Hackney division the sites are 13, of which 6 are in Hackney parish, 3 in St. Leonard's, Shoreditch, and 4 in Bethnal-green. The sites in the Marylebone division are 5 in number, 2 of them in St. Marylebone parish, and 3 in St. Pancras. In the Tower Hamlets division the sites scheduled are no less than 15 in number, 1 being in St. Botolph Without, 1 in Whitechapel, 1 in Ratcliffe, 3 in Limehouse, 4 in Poplar, 2 in Mile-end Old Town, and 2 in Bromley. The number in the Westminster division is 5, of which 2 are in Covent-garden, 2 in St. Clement Danes, and 1 in St. John the Evangelist. The sites to be purchased in the county of Surrey are 41 in number; of these 22 are in the Lambeth division, viz., 3 in Newington, 4 in Lambeth, 7 in Camberwell, 1 in Lambeth and Camberwell jointly, 1 in Kennington, 2 in Clapham, and 4 in Battersea. The number in the Southwark division is 19, of which 2 are in Christ Church, 3 in St. Saviour's, 3 in St. George the Martyr, 1 in St. John's, Horselydown, 7 in Bermondsey, and 3 in Rotherhithe. The number of sites scheduled in the county of Kent is 9, of which 2 are in Greenwich, 3 in Deptford, 2 in Plumstead, 1 in Lee, and 1 in Lewisham. The total number of dwelling-houses on these several sites (in addition to business premises and other buildings) proposed to be demolished for the intended new school-buildings is 548, of which 22 are in the Chelsea division, 66 in Finsbury, 91 in Hackney, 31 in St. Marylebone, 71 in the Tower Hamlets, 24 in Westminster, 103 in Lambeth, 113 in Southwark, and 27 in the Greenwich division.

SCHOOLS OF SCIENCE AND ART.

North London School of Art.—Col. Sir James Hogg, M.P., who presided on the occasion of the sixth annual distribution of Government prizes to successful students in connexion with the North London School of Art, said it was satisfactory to think that the Government, in that particular district of the metropolis, had established a school of art for elevating pursuits; and that the Government had by their present system of education interested themselves in their training of the arts and sciences. It was impossible to say too much upon the culture of science and art; they could not be too widely dwelt upon. To cultivate art was to cultivate all that was beautiful and graceful, and would tend greatly to elevate all those who studied it. The students were studying, he rejoiced to find, all that tended to elevate their character by mental and intellectual training, which more advanced persons, he thought, than anything else, making themselves and their homes happier. He could not but help thinking how much more useful young men and young women would become if the importance of joining such a class as the North London School of Art were impressed upon them. When he looked round and admired the various pictures that adorned the walls, he could not but earnestly hope that there was some young artist among them who would shine in the artistic world. He was glad that many of the students had gained prizes for building construction. Many people imagined that there were no handsome buildings in London, but he thought otherwise; anyhow, if the rising generation thought there were not, they could make up the deficiency. He had been talking about

refined tastes making a man happy, and he thought they would agree with him that with those who were inclined to bring intellectual attainments to their work the results arrived at would be better; but there was a larger and wider character open, viz., the advancement of the country's manufactories and arts. Many of the students were engaged in artistic designs; and he was glad of this, for he was of opinion that working men should study the principles in which their work was founded. It had been stated that the English were far behind their neighbours in art education, but that statement he thought rather an exaggerated one, although, at the same time, in artistic designs foreigners had excelled us.

Keighley.—At the annual distribution of prizes to the students of the School of Science and Art in connexion with the Keighley Mechanics' Institute, which took place in the lecture-hall of the Institute, Mr. Edward Baines contrasted the building in which the Institute once carried on its work with that in which it was now located, and said the contrast was so striking as not to be exceeded even by the progress of the population or the prosperity of their manufactures from 1825 up to the present time. He had the pleasure, at Ripon, of giving to Keighley the highest rank among the Yorkshire institutes, but he found that he had underrated their position, and that, in addition to the 905 members, there were to be added 795. In the Trade School there were 180; in the Art School, 150; in the girls' elementary classes, 150; in the boys', 250; and in the evening science class 60,—making 744 to be added to the 905. So that they had 1,695 altogether; but from that they had to deduct those who were members both of the Institute and the schools. Making a liberal allowance for that, they had still left 1,500 young persons engaged in the study of art, literature, and science, infinitely to their own advantage and to that of the town of Keighley. Keighley, he had thus still to say, held the first place of any town of Yorkshire—not only in the variety of its agencies, but in the great number of its members; and he begged that, as they had the first rank now, they would strive to maintain the position they had, with so much labour and so great difficulty, earned.

THE NEW MORTUARY FOR BATTERSEA.

At their meeting last week, the Wandsworth Board of Works finally agreed upon the erection of a new mortuary in Battersea. The Committee to whom the matter had been referred, recommended that a plan which had been prepared for the erection of a mortuary in St. Mary's Churchyard, by the architect of the Rev. Erskine Clarke, the vicar, should be approved, subject to certain minor arrangements suggested by the surveyor. In moving the adoption of the recommendation, Mr. Tully said they could not obtain a better site, and with regard to the plans, he observed that there was not much difference between that submitted by their own architect and the one drawn out by the vicar's architect. The latter wished the building to be of such a character, architecturally, as to harmonise with the church, to which the mortuary would be adjacent. Mr. Todd thought that if their own architect's plan was the cheapest, there was no reason why they should go to any extra expense; but it was eventually decided that the mortuary should be erected according to the design furnished by the vicar's architect.

ST. SAVIOUR'S CHURCH, POPLAR.

This church, which has been some time in course of erection, was consecrated by the Bishop of London on SS. Simon and Jude's Day.

The church consists of nave, north and south aisles, chancel, chapel on south side, and vestries on the north side of chancel, with organ-chamber adjoining. The nave is 82 ft. 3 in. by 27 ft. 4 in., the aisles being similar in length by 14 ft. wide. The chancel is 32 ft. deep by 23 ft. 8 in.; chapel on the south side, 27 ft. by 19 ft. 3 in. There is a covered porch or narthex along the whole of the west front 10 ft. wide, into which the doors to the nave and aisles open. The height of the walls to aisles is 14 ft. from floor-level to plate; the nave is 32 ft. high to plate, and 54 ft. to ridge.

The materials used are stock bricks, with red brick bands for the exterior, with Bath stone for windows, doors, &c., and malm seconds for the interior facing, the arches forming the arcade of the nave being of moulded bricks worked in pattern.

The nave-piers are of Bath stone, circular on plan, with moulded caps and bases, and are 10 ft. high from the floor level to the springing line of the arches.

The roofs are of Memel fir, covered with boarding, and are stained, but not varnished; the chancel-roof consists of moulded circular braces under rafters, resting on carved stone corbels about 4 ft. apart.

The nave is lighted by quatrefoil windows, ten on each side, with enclosing arches in red brick. The style of the church is the Early Middle Pointed, the aisle windows being each of three lights, with varied tracery, the east and west windows being of five lights each.

The nave is lighted at night by gas coronæ suspended from the walls of the clearstory, and the aisles by wall-brackets. The chancel is lighted by two standards placed against the brass altar-rail, and by a series of jets on the top of the open wood-screens at back of the choir-stalls. These works were executed by Messrs. Hart. The pulpit, font, and dwarf-wall, separating the nave from the chancel, in stone and marble, were executed by Mr. Anstey, of Alpha-road; and the general carving, both inside and out, by Mr. Robinson.

The accommodation provided is for 750 adults. The church has been erected by Mr. William Bangs, of Bow, at a cost of about 7,000*l.*, Mr. Bulton being the foreman of works under the contractor. The architects were Messrs. Francis, of Old Broad-street.

ELECTION OF DISTRICT SURVEYORS.

At the ordinary meeting of the Metropolitan Board of Works last week, an election took place to fill the office of district surveyor of South Islington, vacant by the retirement of Mr. Godwin, after long service. There were twenty-eight candidates. The following six were chosen to go to the poll: Messrs. R. Plumbe, Mathews, Gundry, Watson, Piper, and Walker; from which list Mr. Plumbe was ultimately selected. For the office of district surveyor of Stoke Newington, also vacant, there were nineteen candidates. The six named to go to the poll were Messrs. J. D. Mathews, Gundry, Watson, Piper, Archer, and Landsdown, and Mr. Mathews was ultimately elected.

Both the new district surveyors have worked earnestly to promote the interests of their profession, and we are glad to find that they are appreciated beyond their immediate circle.

SANITARY MATTERS.

Darwen.—The fever epidemic at Darwen has been the subject of an official inquiry by Mr. Henry Stevens, M.D., representative of the Local Government Board. That gentleman, having investigated the drainage and other sanitary arrangements of the town, attended a special meeting of the local Board, and addressed the members on the cause of the epidemic. A few hours, he said, had satisfied him of ample cause for that great and most aggravated calamity that had befallen them. He could not find words to convey an idea of the bad state of the town. The abominable filth that he had seen, the acres of uncovered excrement that they had got in the town, had never been equalled in all his experience, and he had had a considerable amount of experience. He found yards with cesspools uncovered that were hidden from view and simply obnoxious. Between Henry-street, George-street, and William-street, there were alleys that were composed of cesspools insufficiently covered, with houses built on either side of them, and in the back-yards of the houses there was no convenience whatever for privies for the storage or holding of ashes. He recommended the adoption of the dry-earth or tub or pail system of removing excrement, and a constant removal of refuse. He condemned open cesspools, and said that the present scavenging system was "a farce, a delusion, and a snare." The houses were situated so closely together that it was next to impossible to prevent contagion. They needed a mortuary, and provision ought to be made for conveying infected patients to it in a kind of ambulance, so that they might be kept isolated. A vote of thanks was passed to Dr. Stevens at the close of the proceedings.

Outbreak of Fever near Bolton.—At the last meeting of the Bolton Rural Sanitary Authority, a letter was read from Mr. E. C. Deakin, of Belmont bleachworks, stating that there were four cases of fever at the Wrights' Arms, Belmont, which had been imported from Darwen. The authority at once instructed Dr. Gregory to proceed to Belmont to use whatever disinfectants were necessary, and to order the affected persons to be removed to the workhouse if the circumstances warranted such a step.

Fever at Weaverham.—An outbreak of fever having occurred at Weaverham, Cheshire, resulting in upwards of a dozen deaths, the Inspector of Nuisances (Mr. H. J. Bennett) has made a house-to-house visitation of the place, and found enough to account for the rise and progress of disease of an epidemic nature. The inspector has recommended a scheme for the suppression of the nuisances, and the Norwich Union rural sanitary authority propose to carry his suggestions out.

The Water Question at Bernard Castle.—At the last monthly meeting of the Teesdale Rural Sanitary Authority, Mr. Robinson, C.E., Darlington, produced, as requested, a report as to the water-supply of Cockfield and Woodland, and stated that the water from Woolley Hill and Hindon Beck was not suitable for domestic use. The only source of supply, therefore, was cold wells, and the Duke of Cleveland, as owner, and the London Lead Company, as lessees, had declined to allow the Board to appropriate the spring. The chairman then apprised the meeting that the Waskerley Water Company intended applying to Parliament next session for power to purchase 180 acres of land in the neighbourhood of the Grove, to be converted into reservoirs, and also for sanction to raise 600,000*l.* capital to carry out the works, and with this fact before them, Mr. Scarth advised the meeting to postpone any immediate action. This course was adopted.

The Sewage Question in Birmingham.—The Sewage Committee have prevailed upon the advisers of Sir Charles Adderley, in view of the prevalence of epidemic disease in Birmingham, to give an assurance that the right hon. gentleman will no longer oppose an application by the Council to Vice-Chancellor Bacon so to vary the existing orders for injunction as to enable that body to proceed with the sewage in districts in which the medical officer of health advises drainage operations to be undertaken.

Bad Sanitary Condition of Rhyl.—A long and somewhat stormy discussion has taken place at the Rhyl Commissioners' meeting on the proposed drainage of the town. Months ago Colonel Cox approved of a plan, but nothing has been done towards carrying it out. The members generally agreed that the drainage of the town was in a disgraceful state, and that unless something was done the town would lose its popularity. Mr. Preston said the drainage was in such a deplorable state that a Government inspector would come down to inspect the town if something was not done immediately. Eventually it was agreed that the necessary arrangements for the drainage of the town be made forthwith. The scheme is likely to cost 8,000*l.*

Bristol Urban Sanitary Authority.—At the last weekly meeting of the committee of this body, the medical officer (Mr. Davies) reported that the city was healthy, and the death-rate was 23 per 1,000, being a moderate rate for the season. The chairman said he wished to say a few words concerning the connexions with the drains being properly seen to. He had gone into the matter with the city surveyor and his officers, and he found that the building inspector's duties were to see that the plans of all new buildings were carried out in accordance with the by-laws and the Act. They superintended and examined all drains, pipes, their connexion, and the proper laying and putting together the joints of the drain-pipe, and also saw to the construction of the traps and privies, so that everything that could be done had been done by the officers of the city surveyor. He said that in order that there might be no mistake. Mr. Matthews said he intended to have moved a resolution with reference to the sewer-gas question; but as this was the last meeting of the present committee, he thought it had better stand over until the new committee was appointed, and in the meantime he would get it into shape.

COAL DUST.

Sir,—Will any of your readers tell me the best method of utilising coal-dust? I cannot burn it in my kitchen, and have always a great quantity on hand, it being too dusty to burn in the open stoves. W. P.

ISOLATION, AND THE ORGANISATION OF LABOUR.

PONDERING on the problem involved in Great Exhibitions, we would go back for a moment to the days of Marco Polo, the Venetian,—a poetic, not to say somewhat dreamy time, long before the modern system of doing things had for a moment been thought of or even imagined. A remarkable time, truly, in very many ways, and most instructive to glance at, from the fact of its enormous divergence from the present. The great principles at work in the minds of men in that day, and certainly in the minds of statesmen, and in the minds of those who thought of and regulated the affairs of men and nations, was undoubtedly that of "isolation." Walls of adamant almost surrounded each individual State; and it was only with difficulty,—almost impossible to realise in these free-trade days,—that one nation, or even one city, communicated with another. It was war and invasion that brought the isolated communities together. Trade, and the instinct of the trader, doubtless did a good deal, for people *will* trade, as Mr. Cobden used to affirm, in spite of all hindrances and difficulties; but in the main, "Isolation" ruled everywhere. Each nationality, and city, and trade sought to keep its gold, and its silver, and its trade secrets at home, and to itself, and the whole spirit of the times favoured this isolation, and so "protected" *individual* action. Such was the spirit and instinctive feeling of the Middle Ages, and of the times of our later forefathers, when they lived, and ruled, and did their work. That it had its disadvantages, and its no end of hindrances, there can be no sort of doubt; but that it had *some* advantages peculiar to itself is equally certain. What were they, then, if any?

It is this momentous question, hard to answer exhaustively, that leads at once to our proper subject matter; for one of the prime objects of these annual Exhibitions has been, not only to bring together the work done in our own land, and by our own fellow workmen, but to bring together, for comparison's sake, the work done by other men, working under widely different surroundings, and under other skies, and with other materials. In short, to see what Nature in her infinite variety of workings can do, as she has disposed her materials, and her diverse *minded* and *handed* workmen all round the world. And these successive Exhibitions, from 1851 to 1874, have no doubt done this more or less completely, but in a somewhat curious and certainly modern way, difficult, it may be, to make quite plain to those who have not already thought of the thing a little. Let us, to make the matter as clear as we well can, go back a few centuries. Suppose that in the days of old Marco there had been an exhibition of Venetian products generally, of materials, *processes* (we would emphasise this last word), and fine-art results, in the then Gothic London. Let it be borne in mind that the then Londoner was surrounded on all sides entirely by his own home-made wares, and his own home-made architecture and costume. But little, very little, could have come from the foreigner, and even when and where seen must have at a glance been recognised as foreign. Some imaginative power is required to picture nowadays this aspect of things British. But what would the Venetian have had to send and to show to the good folks of London so different from his own home-made wares? Why, simply everything. From the language he spoke, to the architecture he lived under, and to the "ritualistic" dress he wore, all things were different. Venice and the Venetian produced one set of things; London and the Englishman produced another. The *Gothic* of Venice, for example, though so "Gothic" as to be almost typical, was as different from the Gothic of London as two things can well be, and it was isolation that produced them both. It is a singular problem, and we must wonder how it is that no more attention has been given to it; how it was that the same "Gothic" idea of architecture should have travelled as it did into all the countries of Europe,—from Venice to London, and from Moscow to Madrid, and that it should have assumed so different and characteristic an aspect in each one of them; so individual as to be quite distinct, so much so indeed as to make of them almost distinct styles of architecture. Surely there must be, and was, an interest in such way of work; a way of work, be it observed, all but impossible nowadays, when materials, methods of work, and styles of art, travel at express speed. A Venetian Exhibition in Gothic London would indeed have been a novelty. Let it not be supposed that this glance at the old ways of work has no application to art or art work in these days; or that the idea does not bear upon the modern Exhibition efforts; for nothing can well be more disappointing than the French work, to cite an instance in this Exhibition, if we look in it for the peculiarly and specially French manner. Nothing can surpass the ingenuity of the French artists and workmen, or their neatness and skill of hand. Nothing seems to come amiss to them; and we can but regret that so much skill should be expended in work in which there is in reality no special style, or feeling, or even intention, and certainly nothing that is thoroughly and entirely French. There was no single object in this year's French show to compare with the admirably-carved marble chimney-piece of last year, and of the author of which we, at the time, but in vain, endeavoured to learn the name,—a true artist and workman. We cite the French work as typical. But if the show put forth in this year's Exhibition by the Frenchman must needs cause disappointment to those who went to see what he, *as a Frenchman*, can in these days do, how much, even, greater must be the disappointment in the Hindoo, or Indian, or Oriental court? From the Frenchman we do and ought to look for the veritable French mind and hand; and most surely from the native Oriental should we look, in such a show as this, for evidences of his mind and hand skill,—not borrowed or copied work, or work made for others,—but his own work, and made for himself. It seems well-nigh impossible to exaggerate the amount of loss here; for the Oriental man, as was so strenuously urged at the "Congress" of Oriental treasure-finders, is not only an original man, but a liberal donor of original gifts. There is actually nothing, according to that learned congress, that the Eastern man cannot do, or has not done, as well as, or even better, than any other of nature's original types of humanity. And then, the enormous sphere of his activity, the vast primeval continent of Asia, in which he has worked and lived, full of mystery and wonders on all hands,—the primal ground on which mighty nature went first to work. What is it we want, then, to see from his strange country, and from his strange mind and hand? Why simply his *own* work! But in this Hindoo Court, in this now passed away Exhibition, this is precisely what we did not and could not see, for almost nothing of it was there to be found. Only by the merest accident a glimpse was got of it. Up in some obscure corner, may be, there was found, by dint of searching, some rough earthen vessel or pot, with, may be, some rude figures or devices drawn on it by native hands. This is genuine work as far as it goes. There was, too, a little metal-work, inlaid silver in iron, in very many ways good; but even here it is by effort that you get at the real work of the native artist, for the *forms* may, perchance, have travelled all the way from Birmingham or Sheffield. Then there were textile fabrics, from fine muslin to rugs, and shawls, and even silk handkerchiefs; but it needed a keen eye to find out and to separate the real work from the "market" patterns and the market colours,—on which, by the bye, a good deal might be written. These Great Exhibitions have been, as we know, full of trade and business adventure, and the "markets" consequently must be looked to. But the real and true artistic interest in such a display as this must be in the being able to see what that particular phase of human nature, the Oriental man, can produce by himself and for himself, that we may thus come to appreciate his native and original powers as an artist and a workman. And may not this thought guide to a truer display of Oriental work in some future Exhibition, whenever such may be determined upon?—an effort to find the native workman, so well able as he is to do his own work, and to think of it for himself. In this way these Exhibitions have their prime work yet to do. It is a thought that leads very far indeed, and points to the future; for it may happen that those Eastern men may come to be conscious of their native artistic strength in a way which they now do not dream of.

If it were, then, asked what it is in *principle*, looking at the artistic aspect of it, that these Great Exhibitions have done most to foster, and to place prominently before the world, we should reply, that it has been the showing how the power of "organisation" and *division* of artistic labour can be brought,—as in machine-making it has been,—into action, and into profitable and even effective play in Art. All Adam Smith's dreams of what could be accomplished through the division of labour, have in these days been even more than realised. A man, says Adam Smith, working by himself, in a room full of good hand-tools, may be the whole of one day making a very common and very simple object. But, he says, put this same object into the hands of a *number* of men, each man doing his own special part of it, and it may be that ten or twenty of such objects may be the result of it. No one who looks about will doubt this. And this applies not merely to things of simple utility only, but to "ornaments,"—things wherein artistic work forms a necessary and component part of them. We do not here refer to the *design* only, but to the working out of that design. It is by and through the power of "organisation" that such work is now done, and by which *so much* of it is got through. Everywhere about us the results of it are seen, and these Exhibitions have been right full of them. In this, the last year of the Exhibition, this way of work was all but triumphant. It was *almost* an accomplished fact, and perhaps the very little there was of what, in old-fashioned days, was the way of work, was even more instructive than its total absence. A curious state of things, and at the very foundation of art action. It is little as those who now rule in these matters artistic, think of it,—the to be, or not to be, in art. In this Exhibition, to be viewed lately for a penny, there were here and there, by accident as much as anything, examples of *hand*-work, or perhaps we ought in strictness to say, of solely *individual* hand-work; a few things, as we have said, with at least this amount of merit in them: they evidenced the capacity and kind of ability possessed by the executive workman,—his art handwriting. A little of it was seen, but very little, in the French court, a little in the Hindoo court, a little of it every here and there, patent only to those who can see it, and who look for it. It may be one of the problems of the *future* in art, and be put to the art-student as a test of his powers of sight, and insight, and artistic instinct, to go round such a show as this, and to note down after careful examination, and to point out the results of the individualised artistic powers, as seen in the working artist's productions. We know of nothing in the way of art "examinations" which could possibly surpass this as a test of discriminative and artistic mental powers. We would commend it to those who are charged with the teaching of art to the people.

THE NEW OFFICES OF THE SOUTH YORKSHIRE AND NORTH DERBYSHIRE MINERS' ASSOCIATION, BARNSLEY.

THE Association occupies a prominent position amongst similar societies, having something like 23,000 permanent members, and over 50,000*l.* in its funds. The new offices and residence for the two secretaries, which were formally opened on the 9th inst., have been erected from designs furnished by Messrs. Wade & Turner, architects, of Barnsley. The style adopted is a sort of Italian Gothic, and the building being situate at the junction of the Cockerham and Victoria roads, has a striking position. The residences are situate at each end of the erection. The offices are approached by an entrance from the Cockerham-road, 10 ft. in width, the floor of which is laid with ornamental tiles. The large office, which is to be devoted to the transaction of the general business of the Association, including that connected with the colliery which is about to be transferred to the society, measures 25 ft. by 21 ft. Mahogany desks run round the office, the floor of which is laid with ornamental tiles. On the right-hand side of the passage, almost opposite the entrance to the principal offices, is a committee-room, 14 ft. by 12 ft., in which the executive of the council will hold its meetings. To the right is the pay-office, in which the whole of the money transactions of the Association will be carried on, including the payment to the widows and orphans of deceased members. In the recess are to be found lavatories, with hot and cold water, as well as a book closet, 18 ft. by 6 ft. On ascending a broad staircase, the council chamber is reached. The room is a very beautiful and spacious one, measuring 50 ft. in length, and 25 ft. in breadth. It is lighted by two eight-light chandeliers.

The sittings for the 102 delegates who, as a rule, meet every fortnight, and oftener when

required, consist of benches, the framework of which are of polished mahogany, with hair-stuffed spring seats and padded backs, covered with maroon leather cloth. Chairs of similar construction provided for the presidents and secretaries, are placed at the upper end of the room. Around the walls of the chamber are hung paintings of various kinds, including that of Sir Humphrey Davy, the inventor of the safety-lamp. In the tower is a room measuring 14 ft. by 12 ft. 6 in. The houses occupied by the secretaries have each an entrance-lobby, 7 ft. wide, with two front rooms, 15 ft. by 14 ft. and 15 ft. 6 in. by 14 ft. 6 in. respectively. There are four bedrooms to each house, two attics, as well as the necessary conveniences. The building, which is set a short distance from each road, stands on 484 yards; but the whole area contains 1,375 yards. The frontage to the Cockerham-road measures 104 ft., and that to the Victoria-road, 74 ft. The space in front of the buildings is planted with choice shrubs and plants. The original estimates put down the cost at about 4,000*l*., but the total expenditure will be between 5,000*l*. and 6,000*l*. The contractors for the several works have been as under:—Mason, Mr. H. Wright; joiner, Mr. J. Broadhead; slater, Mr. G. Scharley; plasterer, Mr. M. Fenwick; plumber, Mr. R. Greenwood; painters, Messrs. Stephenson & Charlesworth; gasfitters, Messrs. Hutchinson Brothers; bell-hangers and ironmongers, Messrs. Wright; all of Barnsley. Mr. J. Whittaker has acted as clerk of the works. The building, it may be stated was erected in accordance with resolutions passed by the council, and is wholly of stone. It is invested in the following gentlemen as trustees on behalf of the Association, viz.:—Mr. Thomas Moore, Sheffield; Mr. John Holmes, Methley, near Leeds; Mr. D. Moulson, miner, Swinton, near Rotherham, president of the Association; Mr. S. Broadhead, miner, Kilnhurst, trustee of the Association; Mr. S. Hall, miner, Masbrough; Mr. E. Law, miners' weighman, Parkgate; and Mr. J. Whyatt, miner, Wombwell Main, near Barnsley.

THE CHATSWORTH STREET BOARD SCHOOLS, LIVERPOOL.

Among the schools now being erected by the Liverpool School Board, those in Chatsworth-street are noticeable for the possession of several appliances not hitherto, that we are aware of, introduced into such schools. As our illustrations show, the buildings face Chatsworth-street and Sophia-street, and occupy the north and east sides of the site on which they are built, the south and west sides being reserved for playgrounds. They will accommodate 1,000 children, divided into 400 infants, 360 juniors, and 240 seniors. There are two infant schools for 200 each on the ground-floor, containing schoolrooms for ninety-five, one class-room for forty-five advanced infants, and two infants' class-rooms for thirty each, fitted with galleries, and capable of being thrown together by movable screens. The senior boys' school for 120, with schoolroom for sixty, is also on the ground-floor, and also has two class-rooms for thirty each. The remaining portion of the ground-floor is occupied by the committee and master's room, and the caretaker's house. On the first floor in the Sophia-street wing are the junior schools for boys and girls, for 180 each, with schoolroom for 120, with two class-rooms for thirty, capable of being thrown together by lifting screens. Each junior schoolroom, 59 ft. by 21 ft. 6 in., is divided into two by lifting screens, as shown in dotted lines, the full width of the rooms. There is a boys' drawing-room over the caretaker's rooms. In the Chatsworth-street wing are the senior girls' school for 120, with schoolroom for sixty, and two class-rooms for thirty each. A mistress's room, supplying a want much felt, with lavatory and w.c., and a girls' drawing-room. Lavatories, and cap and bonnet rooms, distinct from each other, are provided for each school. There are three separate entrances to the playgrounds for infants, girls, and boys, and three main staircases. The main angle of the building is carried up as a gabled tower, and in this are the well and a cast-iron tank, holding 3,750 gallons, supplying the building by a 3-ft. cast-iron main supply pipe, fitted with hydrants and a hose in case of fire. The rooms are all lofty and light, the ground-floor being 14 ft. 6 in., and the first floor 18 ft. high. The upper part of the sashes is hung on swivels. There are also in the outside walls seventy ventilating valves, supplied by Messrs. Lawson & Hainsworth, of Halifax. Each school and class-room has, in addition, a separate extraction-flue carried from the centre of the room to remove foul air and the products of combustion, always open. The whole of the buildings are heated with hot water, on the system patented by Mr. B. Harlowe, of Macclesfield; and, in addition, each room possesses an open fireplace, ensuring the ventilation of the lower part of the room. Doors of communication between the several schools, with pass-keys for easy supervision, are provided. The movable "sound-proof" lifting screens, of which there are six, are the invention of the architect. They open the full width of the room, and half the height, and each is worked by a small winch, fitted up in the cased jamb. When up, a free and uninterrupted view is thus obtained, and the two rooms are practically made one. The wall dividing the boys' and girls' junior schools has an opening in it, 8 ft. square, fitted with sound-proof doors, for the purpose of fitting up a screen for magic-lantern entertainments, and allowing the whole of one school-room being utilised for the audience, while the apparatus is being worked in the next room. The chairman of the Board suggested this idea. Each main façade is faced with Lancashire grey shoddies, the dressings being of red Woolton stone. The whole of the joiners' work is pitch pine. The architect is Mr. T. Mellard Reade, C.E., of Liverpool. The sole contractors are Messrs. Burroughs & Son, of Liverpool. The contract for the whole of the work is for 8,403*l*.

THE CHURCH OF WETZLAR, GERMANY.

We have in our papers upon Mediæval Architecture in Germany made frequent allusions to the "Dom," or "Stiftskirche," at Wetzlar, and we some time back gave an illustration of a portion of the interior of this most interesting edifice. We now propose to call the attention of our readers to a most remarkable feature connected with the exterior of this church.

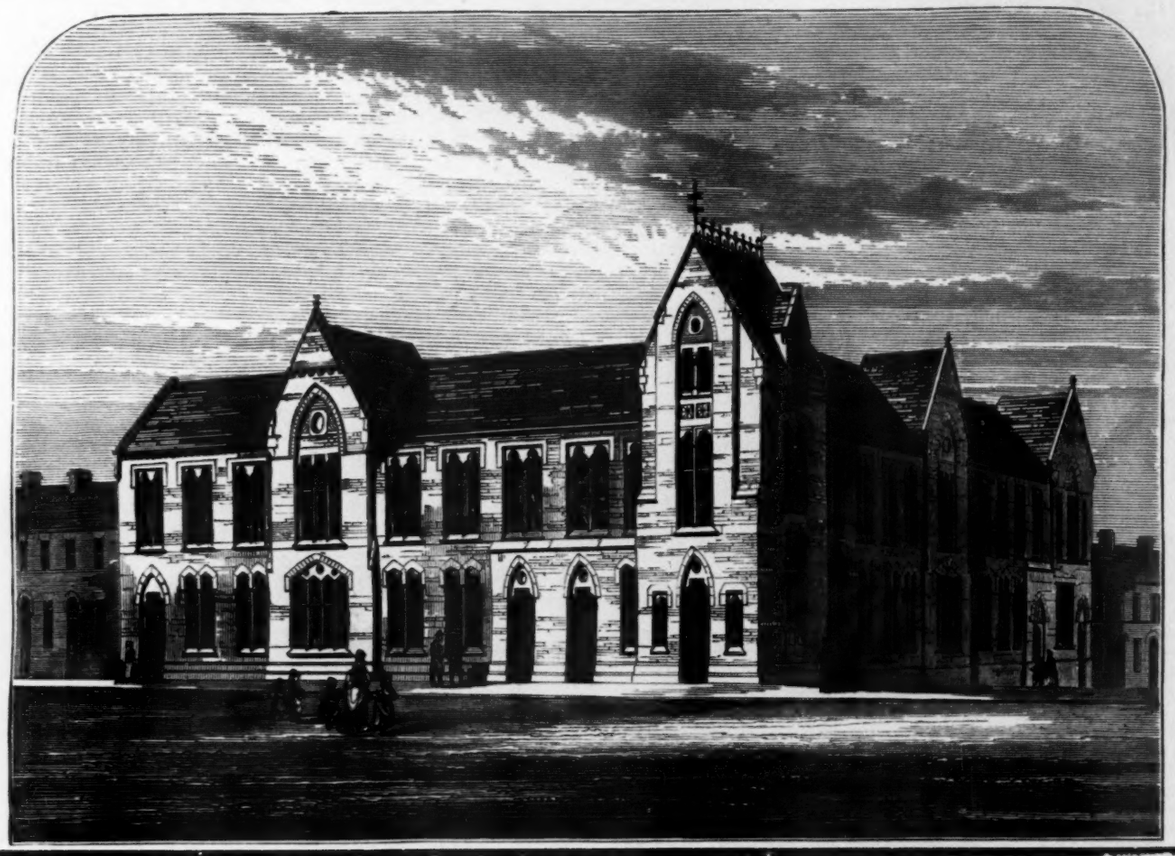
Those who have studied ancient churches, both in this country, and more especially on the Continent, must have noticed how frequent was the practice during the later periods of Gothic architecture, of patching on new fronts to early buildings, and the western fronts of churches were particularly favoured by this operation. In some cases the ancient western end was simply refaced and converted into the prevailing style of the day, in others the ancient western end was destroyed, and a new one erected, and in other cases the church was considerably lengthened, and of course the ancient west end was destroyed. Now, the *great* peculiarity of the church at Wetzlar is the fact that it retains *both* the ancient and the more modern west ends; for, owing to the works having been suspended, probably through the want of funds in the first place, and then having been subsequently altogether abandoned on account of religious differences in the sixteenth century, the more recent front was never entirely completed, and the ancient Romanesque front was never destroyed, with the exception of one tower.

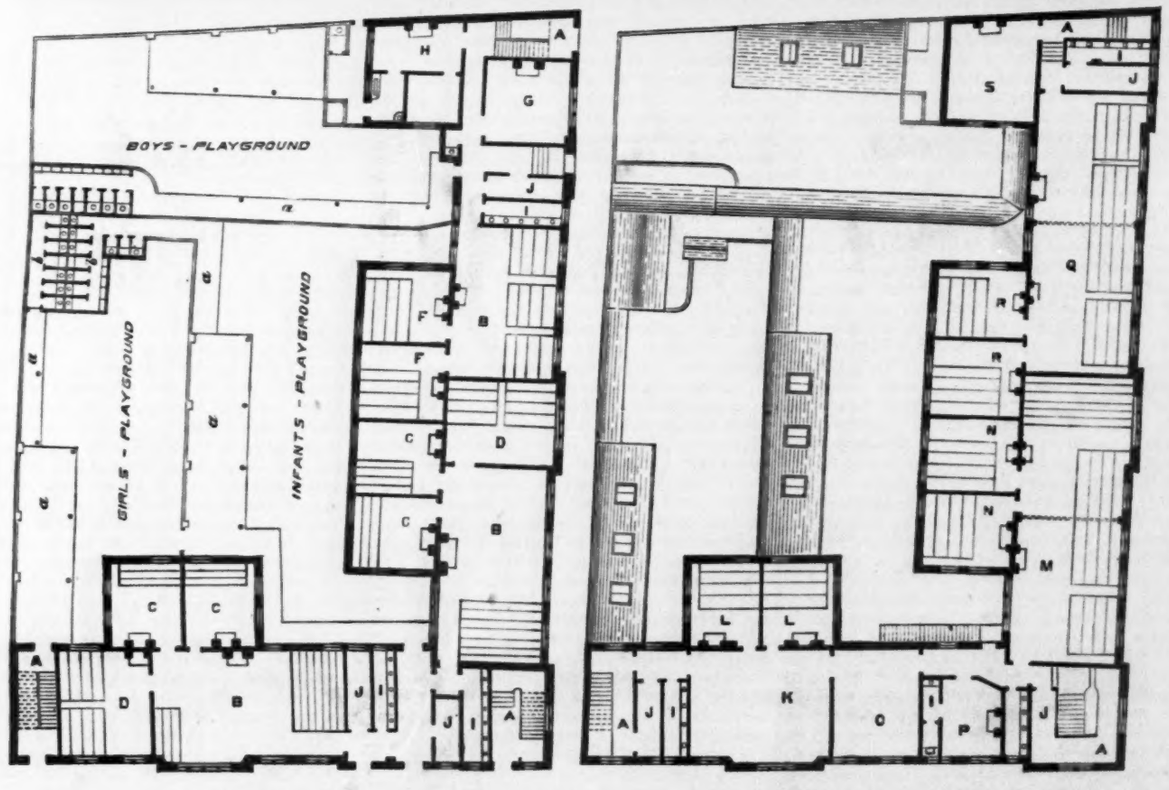
The church of Wetzlar consists of a choir, or chancel, and aisles, of the earlier portion of the thirteenth century, deep transepts, and a large nave and aisles of similar height. The latter, though apparently works of the thirteenth and commencement of the fourteenth century, are really only alterations of the more ancient church, which dated from the twelfth century. This will be seen by examining the lower portions of the walls, where remains of Romanesque arcades will be discovered. When the nave and transepts were heightened and (nearly) rebuilt at the end of the thirteenth century, and the earlier part of the fourteenth, the ancient western front was left standing. It consisted of a deep porch with a double doorway, a round-headed window above, probably a gable, flanked by two rather singular towers, only one of which now remains. It is square in plan, and each face is gabled in a remarkable way. From amongst these gables rises a dwarf octagonal lantern, which was probably crowned with a dome or cone; but this termination, whatever it was, has been destroyed, and is now replaced by a slate roof. There is an absurd idea which is very popular in Wetzlar, that this front originally formed portion of a heathen temple; and although there cannot be the slightest doubt that it is a work of the Romanesque period (probably of the twelfth century), it is a rather singular fact that the tower should have been known by the title of the "Heiden Thurm" for some centuries back. This front is built of tufa. There is little ornament about it except the western doorway, which is subdivided by a column supporting two semicircular arches, the capital of which and the tympanum are ornamented by some rude carvings representing serpents. This doorway leads into a kind of porch or narthex, which occupies the space between the towers.

In the year 1336, the foundations of a new western front were laid, some 40 ft. to the west of the ancient one, and the southern tower of the latter was destroyed to allow of the south aisle being sufficiently prolonged to unite the new southern tower with the nave of the church. Within a period of some fifty or sixty years the lower stories of the great southern tower, with its noble south porch and doorway, the western portal and the basement of the northern tower were constructed. There seems then to have been a suspension of the works for nearly a century, after which the works seem to have been resumed, and the top story of the great southern tower was constructed, and probably the singular wooden lantern, covered with slate, which terminates it. This tower can only have been completed a very few years, if at all, before the Reformation, and it is rather singular that it should be capped by an unmistakable representation of the "*triple crown*." When we take into consideration the fact that at the Reformation the majority of the people of Wetzlar joined Luther, while the clergy of this church remained faithful in their attachment to the Pope, so much so that the church has ever since been divided, the choir remaining Roman Catholic and the nave being used as a Lutheran church, it seems not improbable that this lantern may be the external exponent of that dispute between the laity and clergy which caused the completion of this church to be abandoned.

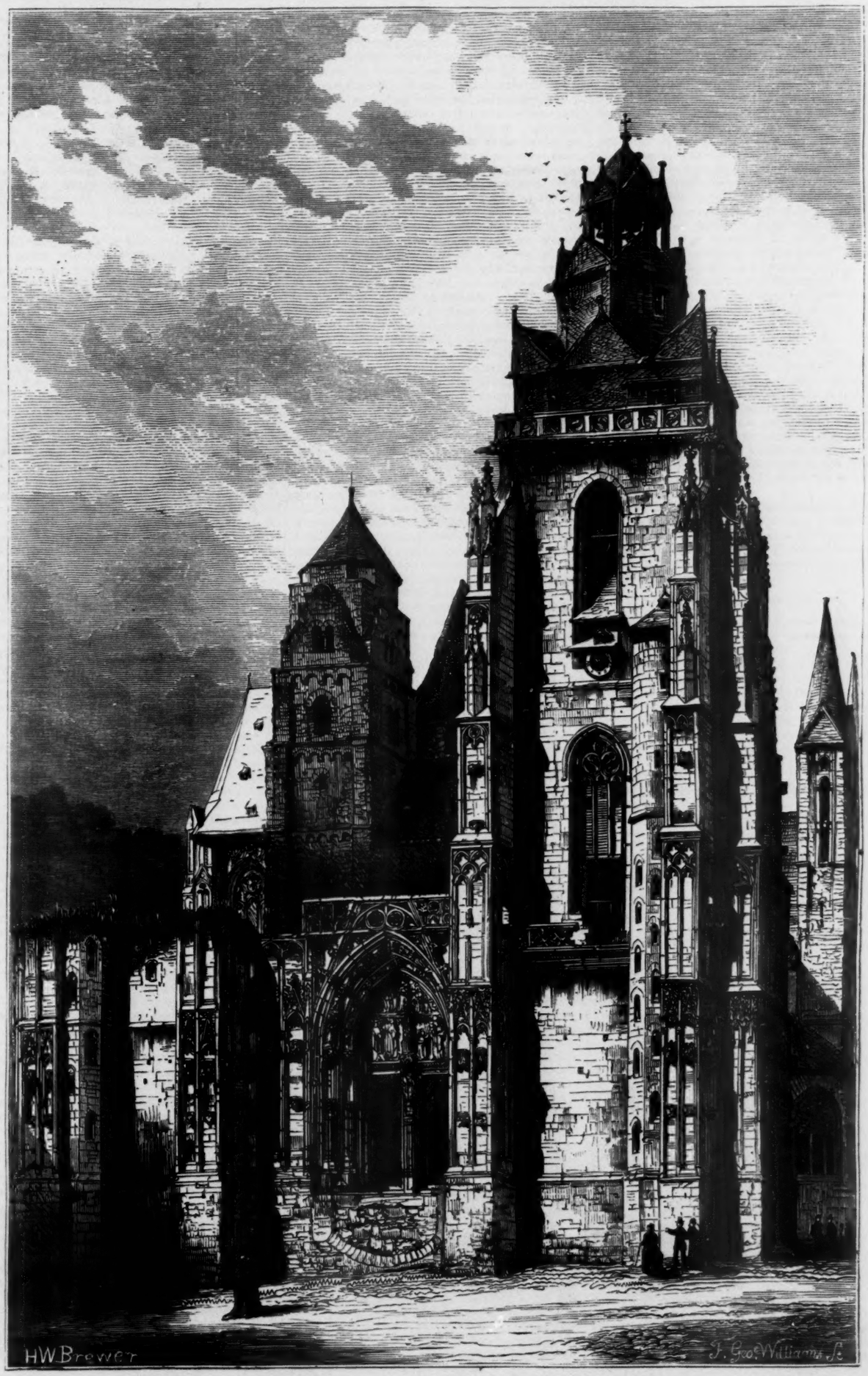
Another interesting thing connected with this west front, is the fact that it proves beyond all doubt that the Mediæval builders were in the habit of finishing their buildings as the work went on, and *not building in block*, and having the carving, &c., executed *in situ*, as is the usual custom on the Continent. For here, although the western wall is only carried up half its height, and the great canopy over the western portal has never been terminated, not only is all the foliage carved in the most delicate and beautiful manner, but even most of the niches have been filled with sculpture, much of which is of the greatest beauty, specially the statue of the Madonna and Child on the centre pier of the western doorway, which is justly celebrated all over Germany. In the tympanum of the doorway the "Coronation of Mary" and the "Adoration of the Magi" are represented; and over the doorway on the south side of the completed tower are fine statues of our Lord and the Evangelists. The figures round the arch of the western doorway represent prophets, and there are some most charming little statuettes of angels introduced between the canopies of the niches, and in the tympana of the arcades; in fact, with the exception of the west fronts of Ratisbon and Freiburg, no other church in Germany possesses a façade more richly decorated with sculpture than this unfinished one of the church of Wetzlar. Notwithstanding, however, the great richness of detail and positive beauty of the sculpture and foliage carving, it would be difficult to find a Mediæval work more carelessly constructed and badly built than this front. The basement of the northern tower, although only carried to the height of about 40 ft., is several inches out of the perpendicular, and is cracked and broken about in a most alarming manner. In the northern tower, the perpendicular joints of the masonry are, in many instances, *almost unbroken for four and five courses*. The stones are very large indeed, some of them being 7 ft. long and 2 ft. 6 in. deep; in nearly every instance these large stones are cracked through the middle; but the jointing of the tympanum of the western doorway is the most singular. It appears to be almost entirely vertical, and there is scarcely a horizontal joint to be seen. Probably this was done in order to get the figures in each carved upon a single stone, so as to have no joints cutting across them; but the result has been that the lintel which supports this tympanum is cracked in several places. Of course, to finish this front now would be an impossibility, and it is perhaps a fortunate thing that it is so, if we may judge from what has been done in that way with the Wiesekirche at Zoest, where an interesting fragment of an ancient design has been made the foundation of a pretentious and most uninteresting modern façade.

LIVERPOOL SCHOOL-BOARD SCHOOLS, CHATSWORTH STREET.—Mr. T. Mellard Reade, Architect.





A A A. Staircases.
B B. Infants' school-rooms.
C C C C. Infants' class-rooms.
D D. Advanced infants' class-rooms.
E. Senior boys' school.
F F. Senior boys' class-rooms.
G. Master's and committee room.
H. Care-taker's house.
I I I. Lavatories.
J J J. Caps.
a a a a a a. Covered play-grounds and ways.
b b b b. Latrines.
K. Senior girls' school.
L L. Senior girls' class-rooms.
M. Junior girls' school.
N N. Junior girls' class-rooms.
O. Girls' drawing-room.
P. Mistress's room.
Q. Junior boys' school.
R R. Junior boys' class-rooms.
S. Boys' drawing-room.
A A A A Staircases.
I I I I. Lavatories.
J J J. Caps.



THE CHURCH OF WETZLAR, GERMANY.

ARCHITECTURAL ASSOCIATION.

THE PRESIDENT'S ADDRESS.

THE first ordinary general meeting of the session, 1874-75, was held on Friday evening, the 6th inst., the newly-elected president, Mr. G. H. Birch, in the chair, when the following gentlemen were elected members: — Messrs. F. A. Barth, W. S. Merrick, J. S. Alder, J. Jerman, jun., F. Anderson, E. Webb, J. S. Watts, S. Wheelhouse, W. A. Waddington, S. Howe, jun., H. Hearse, J. Tweedale, E. Newton, W. H. A. Berry, H. H. Hunt, J. H. Baxter, H. W. Burrows, S. T. Thomas, J. E. Carter, S. Smith, M. J. Lansdell, E. Dormer, jun., C. B. Young, J. Webster, and H. H. Statham.

Mr. G. H. Birch, in the course of his address, and after referring in flattering terms to his elevation to the presidential chair, said that they had heard from the honorary secretaries of the Association, and also from those various classes which met within those walls, some few statistics of the past session; and those present had heard of their failures and shortcomings in one or two particulars, and he would take occasion to refer to these. First, with regard to their duty to themselves; and, secondly, he would refer to their position with regard to others. He found that it had been the custom of some past occupants of that chair to pass in review, and to criticise, some buildings erected in the metropolis during the year preceding their year of office. Some had offered them their friendly, and, he was going to say, fatherly advice and counsel, as to their demeanour and behaviour in the various professional difficulties that beset them. Some had dwelt at greater length on the advantages to be obtained *here*, and impressed upon them very forcibly the necessity of working harder and studying more deeply. He thought all these subjects exceedingly valuable, with the exception of the first, but he did not think it advisable on the present occasion to indulge in criticism, which was without any advantage whatsoever to them. As to the advantages of membership here, he admitted great good was to be obtained, and of the immense value of the classes here he did feel most emphatically in a position to speak. His objection to criticisms was this,—whatever opinions he might hold, he did not think that the chair of the Architectural Association was the place to enforce them. Undue weight and importance might, and very often, were given to words, mere words, uttered from that chair, to which otherwise they were not entitled, as they were the private opinions of an individual, who might differ in opinion as much from his predecessor as his successor would probably differ from him. They had enough, and far too much, criticism, sharp, unhealthy, and, above all, superficial, not only among themselves, but from the outside. It was in itself, and if used and directed properly, a good thing, and no professional man, however thinskinned he might be, need be afraid of it; but how often was it misused and misdirected? There was no other profession of the fine arts so subjected to this false criticism as theirs. Every one felt competent to deliver an opinion. They were free to do so; but to indulge in a systematic manner of sweeping criticism, without allowing for hundreds of extenuating circumstances, by which they knew very well the architect was so completely bound hand and foot that he could not do even what he would. If they wanted less of this harsh criticism from the outside world, let them be lenient to one another, and let no man review another, either in a quarterly, fortnightly, or contemporary manner. They could be true, but, above all, they could be just.

> "Learn, then, what moral critics ought to know:
> For 'tis but half a judge's task to know;
> 'Tis not enough, taste, judgment, learning, join:
> In all you speak let truth and candour shine."

Alluding to the arrears of subscriptions, the President went on to say that the treasurer's report showed a deficiency in this respect, which state of things, he maintained, should not be. They were continually being crippled in the area and extent of their operations for the want of funds actually owing to them. It was unhappily a fact that the past session had been one of peculiar difficulty in that respect, and their treasurer had advanced money with a generosity which, while thanking him most sincerely, they ought never to have allowed. They had no right to expect any member to disburse from his pocket the funds to pay their liabilities from quarter to quarter; but this was what Mr. Mathews had to do on their behalf. At the present time there were numerous subscriptions still owing, and the greatest difficulty was found in getting at those members who were, generally speaking, conspicuous by their absence from the meetings. The membership of such men was simply a clog to them, and they were far better without it. In all other respects, their position was most satisfactory; but he could not help thinking that the excellent address of their late president, Mr. Edward Tarver, had borne some fruit; but though the attendance had improved, there was still room for further improvement in all other classes in this respect. In looking through the productions of the senior class of design, he was perfectly struck by the marked improvement in quality. Years ago, the ideas were of the wildest, and the construction only suitable for castles in the air, for no earthly buildings could be so constructed. Now, wild ideas of this character were of the rarest occurrence. Design was studiously kept within reasonable limits, and there was scarcely a single drawing which did not show the most marked and careful attention to detail and construction. The Senior Class of Design was fortunate in possessing a president of no ordinary ability in Mr. Walter Lonsdale, and he thought there could be scarcely a single member of the class who attended last session who would not look back in future years with no small feeling of gratitude for his kindly hints in design, and for his valuable criticisms. To make this class, which had been called the sheet-anchor of the Association, more popular and even more instructive than it had been in former years, a special committee was called, composed of past presidents of the class; and it was then decided that certain alterations should be made, not in the actual mode of conducting the class, but in limiting the various designs to one common basis. He trusted that this arrangement would meet with their approval, and that they would show their appreciation of the labours of the committee by joining this class in larger numbers, and supporting Mr. Aston Webb during his occupation of the chair. The Elementary Class of Design was not only well attended, but the interest was well sustained, even to the end of the session. He thought, however, that there was room for more members; and he trusted that the approaching session would see a considerable augmentation of members. In this class they had the advantage and benefit of the opinion of men whose artistic ability had deservedly placed them in the foremost rank of the profession.

Referring to the abandonment of the class for the study of coloured decoration, it was found impossible to continue with so small an attendance. Coloured decoration was a subject that it was more than necessary to know a little about. To be an architect one must know a good deal about coloured decoration, and on the use and harmonies of colour. The works of one of the best living architects, marked as they were by boldness and vigour of detail, were spoilt hopelessly and irretrievably wherever coloured decoration had been applied. Indeed, so utterly base were the combination and tints used, that he could only account for it by the fact that the architect must be colour-blind. The failure of the class in question was due entirely to the apathy shown by the members. The class died a natural death, the officers only being present at its final obsequies, and gave it decent burial. But he hoped it would be disinterred during the present session, and that their strenuous efforts would be exerted in once more placing this among the most valuable of their classes. The "Sketch Book" from time to time made its welcome appearance, having now arrived at its ninth volume, 576 plates having been issued, all being studies and sketches and measured drawings of old work. These plates were in themselves an inexhaustible supply of the architecture of the past for their guidance for the future. As regarded the late autumnal excursion, it was impossible to overrate the value that this was in an educational sense to all those whose privilege it was to attend it. In December they were to have a paper by Mr. Sharpe, who personally conducted the excursion, regarding the autumnal tour, which was to be illustrated by sketches made by the members. That evening promised to be one of the most interesting of the series, and he was glad that they would have that opportunity of testifying their thanks to Mr. Sharpe.

With respect to the subject of voluntary architectural examinations, Mr. Birch went on to say, that forty-three out of about sixty candidates who had passed were members of the Architectural Association. For his part, he believed strongly in architectural examinations, but not in voluntary ones. The Royal Institute of British Architects was a body they looked up to with great respect, as the representative of the profession, to form their laws and protect their interests. It possessed a charter of incorporation, was under Royal patronage, and had all the *éclat* with which the high professional ability of its members surrounded it. He was given to understand that the Royal Institute, feeling that students required something more than seeing their names enrolled in the scanty list of candidates who had passed and received a certificate, proposed that in future a candidate who had passed in both divisions should, on becoming a member, be entitled to the designation of graduate of the Royal Institute of British Architects; in other words, might add G.R.I.B.A. after his name, instead of F. or A. R.I.B.A. He had no doubt but that the general public would be equally impressed with letters of such mysterious meaning, but it was not his intention to raise a laugh about this. He believed firmly in an "examination," and every step taken by the Institute towards this desirable end deserved not only their sympathy, but their active co-operation. He knew that there were difficulties almost insuperable in the way with regard to this subject, but he was sure that eventually they would disappear, and then, and not till then, would an architectural examination be satisfactory, and would add to the confidence which they desired the public to have in their ability.

Reviewing their position as a recognised body, they had reason to congratulate themselves. Their finances, though capable of improvement in the particular already referred to, were in a satisfactory state. Their classes continued to be well attended, and

> "Something attempted, something done,"

might be said of all; their numbers steadily increasing. He was aware that there were still a large number of architectural students who held aloof, partly from ignorance of what they were doing and of what they might obtain by joining their ranks, and partly from an exalted idea of their own self-sufficiency. To the former they were ready to extend the right hand of good fellowship, and would welcome them gladly amongst them. To the latter he would say that he was only too happy to find that there was a possibility of learning one's profession more thoroughly outside these walls than his experience gave any credit for.

As regarded the architectural doings of their neighbours across the Channel, there was a remarkable institution in France still existing, and that was the Commission of Ancient Monuments. This was a Government affair, and was under the control of a Minister, who seemed to combine in his own person the offices and duties which in England were relegated to the First Commissioner of the Board of Works and to the Privy Council on Education, and to one or two other Boards; he was called the Minister of the Interior. The organisation of this department seemed to have been the work of one whose recent loss France still mourned, M. Guizot. The idea was due to him that ancient buildings of all epochs still remaining should be inventoried, and a regular classified list made of them. Drawings of the most accurate description should be made of their existing state, and, where ruin was imminent, small sums of money, granted by Government, should defray the expenses of putting them in repair. This was only a brief outline of this Commission of Historical Monuments, for the plan as originally proposed by M. Guizot had since been considerably modified in some particulars and extended in others. There had been an attempt in England to get a similar Commission appointed, but he regretted to say it was unsuccessful, though warmly supported by some very influential Members of the House of Commons. However, he hoped to see the effort renewed, and, perhaps, this time with more success. It required a good many efforts to get the House of Commons to consider measures of this kind. Among the many exquisite drawings sent to England through the exertions of this Commission, it was difficult to say which were the most beautiful. Those who saw them at the Exhibition, he was sure would endorse this. The drawings of Mont S. Michel alone were worth any money to see, as were those of St. Nectaire, Puy le Dome, the Chapel at Vincennes, the latter set being noticeable for the style in which they were drawn more resembling

what they were accustomed to do here. It struck him, after looking at all these representations of old work, and the wonderful field for study thus so readily at hand that French architects had, that when a new cathedral was wanted at Marseilles they should have chosen such a design and erected such a building as they appeared to have done. Drawings, models, and photographs were exhibited in large numbers, and in all there was not a single feature to redeem the innate ugliness of the design, at once heavy and fussy, with a façade recalling a railway station and a Turkish mosque. It was utterly without that dignity and stern expression of repose so imperative in a Christian cathedral. They were subject to fashions in architecture, and perhaps he ought to be more lenient, but why French architects should have adopted the Romanesque and left out the best features of Romanesque, like the play of "Hamlet" with *Hamlet* left out, puzzled him. He had already expressed the hope that such a Commission of Ancient Historical Monuments might take its place as one of the permanent institutions of this country. Of what immense value it would be here to have all their existing buildings possessing any historical and architectural interest, thus preserved from further injury, and protected from private greed or public improvement. The very name of the latter conjured up innumerable instances of wonderful advantages to be accrued, of magnificent thoroughfares which the pedestrian shunned, and where vehicles were not. An instance of this occurred to him then,—Northumberland House. He did not wish them to assume that this building was one that he considered as being worthy of a place on a list of ancient historical monuments to be preserved. In one sense of the word, it was an historical monument, and he much regretted its removal; but the public improvement to be hereafter effected, in which, of course, "the finest site in Europe" was dragged into discussion, gave it popularity in the eyes of a tax-paying community, was, after all, questionable. Looking at the plan proposed, and knowing intimately the surrounding neighbourhood, it did seem marvellous that such a scheme should have passed without any opposition. He had no doubt that if some ancient building, possessing great historic and artistic interest, say, the Priory of St. Mary Rouncival, which once stood on the very site, had been there, it would have been as ruthlessly levelled to the ground as the Town-house of the Percies. This mania for destruction on the plea of public improvement, so rife at the court end of the town, had communicated itself to the City. They had seen several churches demolished, and many others were marked for destruction. The removal of these old churches was now taken quite as a matter of course; no one minded. It must be fresh in their recollection how one of the leading architects of the day had been assailed in articles without number; the whole wrathful indignation of the press had been brought to bear on his defenceless head. Reviewed by Ishmaels of the profession, condemned in the columns of one paper, his dismissal demanded by another. They asked his crime. He was supposed to be in favour of tampering with the work of the greatest architect who ever lived. There was also another fallacy connected with this subject, namely, the want of unity of design in the public thoroughfares. If they believed all they heard, their finest streets were irreparably spoiled through this important principle not having been attended to. Was this want of unity a fault? He could not think so. They had streets where this idea had been carried out, and Regent-street, King William-street, City, and Moorgate-street, were the painful results. Uniformity of design had been tried under the most favourable auspices in the new streets and boulevards of Paris, and even there, with all the advantages of a clear atmosphere, and strong effects of light and shade, it still failed to commend itself to his taste. Let them turn to the London streets, where this principle had not been attended to, and where the glorious system of narrow frontages and doing that which was right in their own eyes, of shooting up beyond their next-door neighbour, or modestly nestling under his shadow, was carried out to the letter without the advantage of a clear atmosphere, &c. Was the result unpleasing? Not in his eyes, and he did not think in the eyes of those present who appreciated the picturesque.

Passing on to speak of the question of competition, the President went on to say that competition was the "curse" of the profession. Let them take an instance. A church was to be built, and a limited number of architects were asked to send designs. They would only compete on the conditions that a professional man of known ability and integrity was appointed judge. The committee agreed, the designs were sent in, and the award arrived at, after most careful sifting of the several designs. "In Memoriam" was put first, as having carefully kept within all the requirements of the particulars supplied as to cost, accommodation, &c. The committee reversed this decision, put it on one side, and chose for themselves, out of four designs, the worst and the most expensive,—the one that they had settled all along should have it. No fictitious case, again, but a fact. He did not come before them with a remedy for all this; they had the remedy themselves. Be wise and save their labour, their toil, and their pains, and avoid "competitions"; never mind how tempting the bait, join not the swarm of minnows. In conclusion, he said, architecture was making real and rapid progress; sounder principles were daily gaining ground; there was a greater demand for their services. They would now be called in where, only a few years ago, it would never have entered into any one's brain to employ them. An architect was a man whom formerly only the titled and great knew anything at all about. He might have been pedantic, but he was always an educated, refined, and travelled gentleman, who could give them an exact copy in Portland stone or cement of any temple of antiquity they had a fancy for. He was not in advance of his times, but was equal to them; and now, as they had altered so much, and construction, through the use of materials now employed, had altered with them, they had to learn more; their education was a matter of vital necessity. If they would keep pace with the times, they would embrace those opportunities here so liberally supplied. Remember that life is short, and art is long, and that the work of their hands and labour of their brains would live when they themselves were forgotten:—

"Out upon Time, it will leave no more
Of the things to come than the things before.
Out upon Time, who for ever will leave
But enough of the past for the future to grieve,
O'er that which hath been, and that which must be.
What we have seen our sons shall see,
Remnants of things that have pass'd away,
Fragments of stone, rear'd by creatures of clay."

Mr. Phéné Spiers, in proposing a vote of thanks to the president for his address, dwelt upon the importance of students preparing themselves for examination at the Institute, and expressed his opinion that, in the course of time, such an examination would be indispensable, and would be regarded as a mark of qualification by the public.

Mr. Lacy Ridge having seconded the motion, it was carried, and the proceedings terminated.

SUPPLY OF WATER IN PARIS.

The state of civilisation of a people, says M. Belgrand, the engineer who presides over the waterworks and sewers of Paris, is indicated by the quantity of water provided by the authorities for each inhabitant.

In Paris the total quantity is considerable, not less, in fact, than 355,000 cubic mètres in twenty-four hours, supplied by the canal of the Ourcq. The water of the Seine raised by twelve pumps, that of the Marne elevated by the great waterworks of Saint Maur, from artesian wells, from the fountains of Arcueil, Rungis, Belleville, Des Près Saint-Gervais, and the derivation of the Dhuys. The derivation of the Vanne, just completed, will shortly add 100,000 mètres more to the total.

This mass of water is distributed in Paris by means of 59 ornamental fountains, 26 fountains in public markets, 813 fountains, plugs, &c., for public use, 4,500 cocks beneath the pavement for flushing the gutters, 240 hydrants for filling water-carts, 2,900 ditto for watering the roads with hose branch, 80 fire-plugs, 155 stations for supply of the water-carriers, 681 urinals, with about 250 public offices, 50 religious edifices, 250 schools and colleges, and 200 municipal establishments. The number of private houses supplied with water is only yet about 40,000.

The supply of water is stored in twelve large reservoirs, two of which, namely, those of Ménilmontant and Montsouris, have a capacity of 300,000 cubic mètres; the Passy, Belleville, Charonne, Buttes-Chaumont, Monceaux, Gentilly the Pantheon, Saint-Victor, Racine, Vaugirard, Montmartre, and Château-de-Montmartre, vary in size according to the area which they serve.

Little now remains to be done to give to all the inhabitants of Paris an abundant supply of water. The grand works which brought the water of the Dhuys to the capital have long been finished, but a few supplementary supplies have still to be diverted into the great conduit. The Vanne works are all but finished, but the upper chamber of the great reservoir of Montsouris is not yet available on account of the falling in of the unfinished vaultings which form the roof, but the restoration is nearly completed.

When this work is finished, and the waters of the Vanne are all brought into consumption, those of the canal of the Ourcq, which are chemically bad, and those of the Seine below Paris, will no longer be used for domestic purposes, but only for the streets, sewers, public fountains, and the lakes of the Bois de Boulogne.

A curious fact, not perhaps generally known in England, may be mentioned here. The artesian well at Passy, which occupied many years, and cost a large sum of money to construct, yields water at a high temperature, and loaded with sulphuretted hydrogen gas. This is the more extraordinary as there is no other source of the kind in Paris, and the water of another and much older artesian well, that of Grenelle, which was at first seriously reduced in amount when the new well was opened, is perfectly sweet. The cost and the results of artesian wells have caused them to be abandoned for the future as regards the public supply. It is said that hot baths are about to be established around the Passy well, and an attempt made to render the Passy waters as popular as Harrowgate or Buxton.

The changes above mentioned will necessitate the enlargement of a few mains and the shifting of others, when every inhabitant of Paris will have at his command a supply of pure and wholesome water carefully filtered. The street fountains,—hydrants,—from which the poor obtain their supply of water, are to be increased in number, and in the more wealthy parts of the city water will doubtless be supplied to every floor and set of apartments, as it has been for some years in the best quarters.

When M. Belgrand's system shall thus have been brought into complete action, Paris will have a daily supply of between 400,000 and 500,000 cubic mètres of water, and each inhabitant may consume or use 114 litres a day, while an equal quantity will be devoted to the washing of his house, courtyard, closets, &c.

Taken in connexion with the system of sewerage, this supply of Paris with water to the extent of about 50 gallons per head per diem is, perhaps, the greatest boon that has been bestowed on the people of the capital for centuries, and the reservoirs of Ménilmontant and Montsouris and the conduits which bring the Dhuys and the Vanne to the city will in future times rank amongst the most notable monuments of France.

England was long ahead of Paris in respect to the supply of water, but our neighbour has now surpassed us, and we may with advantage revise and complete our system.

COLOUR IN THE STREETS.

Sir,—Your correspondent, "G. M.," bewails with great justice the absence of colour in the streets of London, and suggests blood-red bands as auxiliaries to the red pillar-posts, as a relief to the sombre effect at present everywhere visible.

To go a step further, it appears to me that we might with advantage take a lesson from our Continental friends in this respect. Not only do they study the effect of chiaroscuro in the arrangement of their shop-wares and fittings, so as to set off their goods to the best advantage, but entire façades are painted with architraves, pediments, pilasters, cornices, ornamental panels, balustrades, and even festoons of flowers, so as to give the effect of a handsome front to a building which is devoid of a single projecting ornament. The substitution of painting for worked stone can of course only be justified on the score of economy, but it might be adopted as a relief to the monotony of the general aspect of our streets to a very much greater extent than it is at present. Glazed tiles would greatly help to this end were they laid in string-courses, or in the frieze of cornices, and the panels of pilasters.

Chameleon.

"INTERNATIONAL PLAYING CARDS."

Some thirty years ago "Felix Summerley" thought of producing a pack of cards in which the court cards, while retaining the quaintness of those now in use, which seem to have come down to us from the time of Henry VII. or Henry VIII., should mark the date of their make by the introduction of portraits of the reigning kings and queens. His desire has only just now, by the co-operation of Mr. Reuben Townroe, and Messrs. De la Rue & Co. been carried out. There might be more fun and more force in them than we find, or they might have been made to approach as works of art, more nearly some of the ancient cards, especially the German. The object, however, has probably been, while introducing a little novelty to avoid producing anything to distract the players' attention. The early history of playing cards is full of interest, involving as it does in a remarkable manner, the origin of engraving and printing. One hint we may give to Messrs. De la Rue. The aces in the pack before us are surrounded with a pattern in blue, quite different from all the other cards. This should be altered, as at present the merest glance over the top of an adversary's hand would at once inform a sharp player of the presence of these very powerful members of the pack.

THE DRAINAGE OF THE ARTISANS', LABOURERS', AND GENERAL DWELLINGS COMPANY'S HOUSES.

APPLICATION FOR PARLIAMENTARY POWERS.

For some time past there has been a dispute going forward between the Artisans', Labourers', and General Dwellings Company and the Wandsworth District Board of Works as to the drainage of the company's houses on the Shaftesbury Park Estate, at Lavender-hill, Battersea, which appears to have determined the company to apply to Parliament for general powers as to drainage. They have given notice of their intention to seek for powers in the next Session, to authorise them to drain the houses erected by them upon any lands now in their possession, or hereafter to be by them acquired, in such a manner as to them may seem fit for securing the best and most effectual drainage of such houses and buildings. The Bill also contains a special clause sanctioning the system of drains adopted, and now in use on the Shaftesbury Park Estate, and authorising its continuance, and also providing for the connexion of the drains with the sewers of the Wandsworth District Board. A further clause provides for the settlement by arbitration of all differences between the company and the Wandsworth Board as to the drainage of the Shaftesbury Park Estate, in reference to which a suit in Chancery is now pending.

SEWER-GAS AND WATER-TRAPS.

Mr. Henry Matthews, of Bristol, writing on the subject of sewer emanations in that city, says:—"It may startle some of your readers when I state that I have, as they can, generated a sufficiency of gas in *a wine-glass* to pass freely through such a trap, and keep up the regurgitation for a considerable time. I wish to point out that the resisting medium in the trap is simply the perpendicular height of water from the bottom of the injected iron, generally 1 in. to 1½ in.; affording, as I think, no substantial hindrance to a moderate pressure of gas finding its way through this slight obstruction into houses, especially when tempted by a higher atmosphere than exists in the sewer.

It should be borne in mind that, whilst the temperature of our sewers is low, naturally, and under such circumstances, decomposition is not facilitated, yet there is constantly taking place new, unknown, chemical combinations—accidental in themselves—but, at the same time, these may and do give off deleterious gases.

The excrement of a typhoid patient passing into a sewer will certainly give off more or less of the germs of that disease, and these only require a sufficient volume of gas to carry them into the house which offers the least resistance in the shape of sewer-traps.

Ventilating pipes or shafts are of no value, for, in the first instance, to be of any value they must be of sufficient size to reduce the pressure of gas in the sewer to such an extent as to prevent the possibility of its entry by the weakest sewer-trap in the house; and, in the next place, supposing you have reduced your sewer-gas to such a pressure by passing it off through ventilating shafts, you have diffused whatever germs of disease may be contained in it throughout the neighbourhood.

Remember, you have not *destroyed* the germs of disease, you have only diffused them."

SCHOOL BOARD SCHOOLS.

A new school was opened in Clerkenwell on Saturday last by Lord Napier and Ettrick, K.T., situate in Eagle-court, near St. John's-lane, and not far from Farringdon-street Station. The building consists of two stories, the ground floor being devoted to the use of the infants, with a covered playground attached, and the first floor to the boys and girls, each department consisting of a large schoolroom and three class-rooms. These are approached by a double staircase in the centre of the building, with ample lavatory and cloak-room accommodation. The plan is somewhat like an elongated E, of a plain but substantial elevation, faced with picked stocks, and red brick dressings; and the schools will contain 301 infants, 210 boys, and 210 girls—721 in all. The architect is Mr. E. R. Robson, of the School Board; and the contractor is Mr. Wigmore, of Fulham, Mr. R. Ayres being clerk of works. The amount of the contract was a little under 4,500*l*.

BRONZE DOORS, BUENOS AYRES.

Messrs. Bunnett & Co. say,—In your impression of November 7th, you give an account of the "Provincial Bank at Buenos Ayres," just erected from the designs of Mr. Hunt, and refer to the principal entrance, which consists of three massive bronze doors.

As these doors, we believe, are the largest ever made in bronze metal, we think your readers may feel interested with a few facts.

The openings for these doors were each 17 ft. 4½ in. high, by 7 ft. 1 in. wide, semi-circular headed. The whole of the front of the doors is very richly ornamented, chased and burnished in every prominent part.

As each door was made, we erected it, and notwithstanding the great weight, it was easily opened or shut.

The weight of each is as follows:—Bronze metal, 55 cwt.; wood core, 12 cwt.; iron frame, 21 cwt. The total weight of one door and frame thus is nearly 4½ tons.

PROPOSED NEW WORKS AT THE FOREIGN CATTLE MARKET.

The Corporation intend to make application in the next Session of Parliament for powers to make new approaches, and widen and construct new streets leading to the market. The proposed works include the widening of the whole of the south side of the road leading from the gate at the north-western corner, and also the construction of an entirely new street, commencing at the termination of the road as widened, and terminating in Victoria-road. The Bill also provides for establishing slaughter-houses at the market, and for the sale of hides and offal. The Bill further provides for the disposal of those portions of the lands and buildings at the market which were erected under the provisions of the Animals Contagious Diseases Act. The Bill also includes powers with reference to the Metropolitan Cattle Market at Islington, and the closing of the hide-market at Leadenhall Market, a main provision being the removal of the hide-market from Leadenhall to the Cattle Market at Islington.

CABMEN'S RESTS.

Wolverhampton.—A public meeting was held at the Town-hall, for the purpose of presenting to the public authorities of the borough two Cabmen's Rests. One of the structures was drawn up opposite the Town-hall, and was an object of attraction to a numerous and popular gathering. It is constructed of wood, roofed with galvanised iron, precisely upon the model of the shelters provided for the cab-stands at Birmingham. The upper portion of the rests being glazed with stout glass, the cabmen can take their rest and keep their eyes upon their cabs with equal facility, while gas and fire and all needful conveniences for cooking dinner or tea complete the comfort of the whole.

Walsall.—Mr. J. Brewer threw open the "cabmen's rest" erected by him on the stand near the Railway Station, and invited the men to take possession and use it. He referred to the legal difficulty in the way of the Council undertaking the charge of the rest, and said that under these circumstances he would meet any deficiency that might remain after the men had themselves contributed towards the expenses of its maintenance. The men very warmly thanked Mr. Brewer for his kindness, and presented him with an address containing a formal acknowledgment of their gratitude.

STATE OF KIMBLE CHURCH.

Sir,—Passing, the other day, through the hamlet of Kimble, Bucks, I could not help noticing the ruinous state of the church. Besides other signs of decay and neglect, I observed in the roof of the chancel, on both its sides, a number of openings, some of these 1 ft. in length, and that the wall of this portion of the building, notwithstanding its massive character, is cracked from the coping to the ground.

Kimble Church, which stands at the foot of the Chiltern Hills, skirted by the Ikeneld-way, near White Leaf-cross, is a very old, narrow building, apparently of the thirteenth century. It retains traces showing that it was once cared for and more honoured by some who have found a tomb in the solitude of its churchyard.

Upon inquiry there I was told that the parishioners were now too poor to restore it. My informants, who seemed really in trouble on the subject, added that the church of Great Kimble was little less dilapidated.

A small amount would sufficiently repair the roof to save the walls and chancel from further damage. If you would kindly make known these facts, the means will no longer be wanting.

Kimble is associated with one of the most remote events in English history, of which there are still, or were in 1840, after the lapse and decay of nineteen centuries, several evidences in the neighbourhood. In old records it is called Kunebel, from Kunebella, or Cymbeline, the British king, and it is mentioned in Domesday Book. James R. Forster.

CO-OPERATION IN EMIGRATION.

Sir,—The scheme and outline prospectus for a company as above, by "A Lover of Progess," in your last, is hitting the right nail on the head, and will serve to open up, I hope, a question which is of vital importance to others, besides the farmers and tradesmen he speaks of as suitable co-partners. This is the kind of thing that will provide a hopeful future for many a weary clerk in this great metropolis, pining at present under the grinding effects of competition, toiling through a prospectless life of routine work, which barely brings him enough to keep body and soul together, to say nothing of providing suitably for wife and family, if he is so unfortunate as to possess these treasures in this over-crowded country; ever building up the fortune of his employer, but never laying so much as the foundation-stone of his own; working ceaselessly, or with very few intervals for relaxation, at a business or profession for which he is possibly ill-fitted, and therefore loathes all the more, and longs for some duty that shall make use of his manly proportions, or develope the latent powers of muscle and sinew which he possesses, but which are quite lost to himself and society in his present sphere, and are hid, as it were "under a bushel."

The question has been frequently brought forward, "What can be done to assist the countless numbers of ill-paid clerks, in commercial and professional circles, especially when from any cause thrown out of employment."

This Co-operative Emigration Company might, perhaps, be just the thing that is wanted, and would eventually become an extensive concern, batches of emigrants going off from time to time to different colonies, or to the United States, as their tastes might lead them after due consideration.

The New Zealand climate is one that I should recommend to Englishmen, as being free from the extremes of heat and cold met with elsewhere, and the Government of this colony offers inducements in the way of twenty acres of land free to every emigrant paying his passage out from England, and good Government land can be

bought from 1l. to 3l. per acre, according to situation.

Further information on this colony might be gained by a visit to the Agent-General for New Zealand, at 7, Westminster-chambers, Victoria-street, S.W.; and by the perusal of a two-penny pamphlet, to be had there or through Mr. G. Street, 30, Cornhill, E.C., called "Notes on New Zealand," by the Rev. P. Barclay. Other books could be named, but I cannot now enter into further details, but shall be glad at any time to assist "the ball in rolling," believing it to be the very thing required at the present time.

W. H. E.

CONDITION OF LONDON BAKEHOUSES.

SIR,—I lay before you for publication a statement concerning the sanitary condition of the places wherein is manufactured the bread on which we live; in which the ferment (a liquid from which the bread is made) stands for hours exposed to air—often very impure air—or, at most covered, only by a sack over the tub which contains it. One place I have recently left has a water-closet, a place where is thrown all the ashes and other refuse of the house (lodgers upstairs), and a five-hole sink, under which passed the whole drainage of the house. Acts of Parliament, we know, forbid all these, and a sanitary inspector is paid to see to these things, but where is he? The Bakehouse Regulation Act orders the whitewashing of bakehouses every six months, but I know of no place where it is done; many of them are in a filthy condition.

One I worked at near Charing-cross had a water-closet in it; and in one corner was a "plug" for keeping out the Thames during high tide; thus retaining the drainage of the house for an hour or two. On the removal of the plug all the drainage of the house passed a hole about a foot square, accompanied with the usual smell of sewage. What fate might we expect if anybody had a contageous disease in the house?

Another place had a water-closet in the bakehouse without a syphon-pipe; in other words, the pipe led straight down into the sewer, which was directly underneath, and the water apparatus out of repair, and not useable.

A fourth had a dustbin across the area (about 3 yards from the bakehouse) under the following circumstances. The bakehouse-door opened into the area, across one end of which is the water-tank, which used to overflow when the water came in; the trapped sink was not sufficient to carry this into the drain, and it used to flow into the cellar (down two steps), where the ashes, &c., were thrown. The cellar was large and not often emptied, and the dustmen had to cross the bakehouse with the refuse. Imagine the stench to which the dough and ferments (liquid) of which your bread is made are exposed.

I do not complain of the ill-ventilated state of most bakehouses, as I am sure, from experience, that bakers would not admit much cold air into the bakehouses for fear of checking fermentation, but this is no reason why the means of preserving their health should be denied them.

The same may be said of bedrooms, many of which are not compliant with the Bakehouse Regulation Act. Again I ask, where are the inspectors?

T.

MARGATE DRAINAGE COMPETITION.

SIR,—It appears to me that as far as the competitors are concerned we are now in precisely the same position in which we ought to have started twelve months ago.

We *now* know what we ought to have been told *then*,—that irrigation is not desirable, but that the most advisable method of sewage disposal for Margate is to discharge it into the sea at "Botany Bay,"—a point then as well known as now as being an unobjectionable site for the outfall.

Mr. E. M. Barry (architect), in a letter to the *Builder*, of August 8th, notices the difficulty of obtaining the necessary information required by competitors as one of the great evils of competitions. Of what use is it for an engineer to waste his time in devising an irrigation scheme or on the detail of the internal arrangements of the town sewerage,—when irrigation is never intended to be adopted and his sewer arrangements will never be appreciated,—for the whole point turns upon the disposal question.

Instead of each competitor being afforded the utmost information he can desire, each is regarded with distrust and suspicion when he asks a question, as if he were trying to gain secret information,—beyond what is fair to his brother competitors,—to get the better of them.

It may be said that every facility and information was given to competitors. It might be thought so by some; for instance, by those two fortunate competitors who had the "tip" to discharge into the sea at the Botany Bay.

The mayor very kindly drove me round the town, as probably he did others. The surveyor answered certain questions put to him, but never volunteered a single statement of any kind. I asked whether there was any place where the sewage could be discharged into the sea without becoming a nuisance. I was told none was known, but I must find out for myself. Now it must have been known that this "Botany Bay" was available, and I say all we competitors ought to have had this pointed out to us, with the option of devising a better scheme if we could. It may be said I am jealous of the two competitors whose designs have been deemed first and second best, and I do not attempt to deny it. I *am* jealous and annoyed that the *mere idea* (the discharge into the sea at Botany Bay) should bear the palm. I have not heard it said that the sewer arrangements shown by "Economy" and "C.E." are better than the others, but I *have heard* that the scheme of the one who was nominated for the first premium could not be carried out under nearly double the amount of his estimate. I think, therefore, that now we know what the Town Council really do wish for (the discharge into the sea); we ought all to be allowed to give our views on the matter, and start fair, with the same information vouchsafed to each. No need for plans to be under motto, but let each engineer compete in his own name.

CHARLES W. WHITAKER ("WESTMINSTER").

ROYAL ARCHITECTURAL MUSEUM.

SIR,—I am obliged by "Assistant Secretary's" letter, in reply to my inquiry as to whether the Museum is open on Saturday evenings.

Surely six o'clock is an early hour for closing on that night?

As a journeyman carver in London—that was before the Architectural Museum at Tufton-street existed,—it was very seldom I missed "getting in" a long Saturday night in the Art Library, or the corridor close by, where the casts where hung, at South Kensington, and I remember that when the gong went at ten o'clock, I used to come away most ruefully.

Has the expense of gas, &c., anything to do with the closing of the Museum at an earlier hour than South Kensington?

Saturday night is assuredly the most popular one at the latter place, and hence the inference that it should be the same at Tufton-street, did opportunity allow.

My business being almost altogether, at present, a country one, it happens that neither my assistants nor myself have many chances for using the Museum. Perhaps we are more fortunate than some of our London brethren, however, as we get greater facilities for being in and about the dear old cathedrals themselves, and this privilege we prize not a little.

If, however, I may infer economy has anything to do with the early Saturday closing, I shall really be very glad to subscribe one or two guineas per annum, if a few other readers will do the same, and thus a sufficient sum might readily be realised to pay the extra gas-bill.

Then, the wealth of architectural detail the Museum contains will be accessible to all classes, and I think may not prove the least attractive item that the metropolitan programme presents to her children for their Saturday evening digestion.

HARRY HEMS.

BUILDER CHARGING FOR PLANS OF HOUSES.

THE case of Cuppy *v.* Hudson, heard at the Shoreditch County Court, is one of some interest to builders.

The plaintiff, a builder, claimed 9*l.* for drawing plans and elevations for two houses, that were built on freehold land belonging to the defendant, near to Denmark-terrace, Victoria Park.

The plaintiff's evidence in chief and cross-examination showed, that he had done building work for Mr. Hudson for some years, and had received payment for three houses. It was not usual in the building trade to charge for plans of houses, when the builder who drew the plans had to execute the work, and he had not charged for the plans of the three houses he had built for Mr. Hudson previously. In the present case, however, another builder was employed, and he considered himself justified in charging for the plans he had prepared according to order.

The first plan in the present case he drew was not exactly what the defendant required, but that had been modified, and new plans made, according to which the houses were built by another builder. The houses were in a row with other houses, but not upon the same plan.

Counsel for the defendant, in his address to the jury, stated he should prove that the plaintiff was merely asked to prepare a rough sketch, not an architect's drawing and elevation of the houses to be erected, and it was monstrous for a builder to assume the status of an architect by merely drawing a rough sketch for new buildings. He called the defendant, who flatly denied giving orders to the plaintiff to prepare plans, but had merely, as his former builder, asked Mr. Cuppy for a rough sketch, and when the plans were brought to him, he at once said they were of no use to him whatever. The plaintiff then asked witness to take the plans home, and show them to his wife, upon which witness replied, that his wife never troubled herself about plans or elevations, and that the plans were not at all what he wanted. The plaintiff thrust the plans under witness's arm, and said, "Take them home; I shall not charge you for them." That was while the houses were being built, and he considered the plaintiff had no claim upon him. The houses were built, but not on the plans of the plaintiff. It was only when the plaintiff saw the houses being built, and another builder employed, that he turned round and demanded 9*l.* for worthless plans.

Witnesses were called in support of defendant's case, and also to prove the usage of the trade.

The jury gave a verdict for the defendant, and the judge allowed full costs.

INFRINGEMENT OF "THE BRISTOL IMPROVEMENT ACT, 1847."

IN October, 1874, at the Quarter Sessions an appeal case was heard before the Recorder,—brought by Mr. John Harper, millwright, of Bedminster Parade, Bristol, against the decision of the magistrates,—who had convicted him in a penalty of 40*s.*, and costs, for omitting to fix stone jambs and an iron door to an opening in a party wall.

Mr. Murch, instructed by Mr. H. J. Brown, appeared for Mr. Harper; and Mr. Norris, instructed by Mr. J. G. Heaven (clerk to the Improvement Committee) appeared for the district surveyor (Mr. Josiah Thomas). The facts of the case, as stated in court, were these:—Harper drew a door-opening in a certain interior divisional wall, opening from a room on the ground-floor into a hauling way. The divisional wall divided the tenement into separate premises, there being separate doors and separate staircases; the said wall was also carried up through the roof and properly coped. The district surveyor requested that the said opening be provided with an iron door and door-frame, and stone-jambs, head, &c., the wall being a party wall.

On the opposite side it was contended that the wall was only a divisional wall; that the house was rated as one only, and numbered as one; and the builder was brought to prove that it was built for one, and therefore the wall in question could not be a party wall. On the first hearing of the case, the magistrates having viewed the site, Harper was convicted in the penalty of 40*s.*, and costs. At the Sessions the Recorder confirmed the decision of the magistrates. The appellant to pay all costs.

STAINED GLASS.

Buddock Church.—A large window has been added to this church, which is a three-light ornamental window with figures introduced. In the centre light is depicted our Saviour, and in each of the side lights are represented two acts of mercy. This window was furnished by Messrs. Cox & Sons.

St. Giles's Cathedral, Edinburgh.—The restoration of the choir of St. Giles's, completed about twelve months ago, is being followed up by the substitution of painted glass for the present plain windows. A committee specially appointed arranged a plan by which the choir windows, nine in number, should be devoted to New Testament subjects, and the co-operation of the public was invited in the way of contributing a series of memorial windows. Already four have been taken up on this footing, and the first of these has just been completed by Messrs. James Ballantine & Son. This is the first window on the north side of the choir, appropriated on the committee's plan to the nativity and early life of our Lord. The execution of it was undertaken by Mr. Duncan Monteith, as a memorial of his late brother. In carrying out the prescribed design, Mr. Ballantine, jun., by whom we believe the drawings were made, has had the benefit of the advice and superintendence of Mr. R. Herdman, R.S.A. Due effect has been given to what is understood to have been the desire of the Ecclesiastical Commissioners that such a tone of colour should be adopted as would admit of the greatest possible amount of light passing through the window. A considerable proportion of the design is accordingly worked out in white and silvery grey, while strong colours are sparingly introduced. The style adopted is that of the period to which the architecture of the church belongs. In the three upper lights is placed the subject of the Nativity, the Holy Family filling the centre light, while that on the spectator's left is occupied with the adoration of the Magi. In the tracery above, the star of Bethlehem appears in the central compartment, the choir of angels being represented in the quatrefoils on either side. The three lower lights of the window are each devoted to a separate subject. On the left is the Presentation in the Temple, in the centre the Flight into Egypt, and on the right the Disputation with the Doctors. At the foot appears, in unobtrusive characters, the dedicatory inscription. The second window in the series, being that devoted to the Baptism, Calling of the First Apostles, First Miracle at Cana, and Healing the Sick, has been undertaken by the family of the late Mr. James Richardson, as a memorial of him. The third, which is immediately over the Napier tomb, has been for the present reserved. The fourth is to be put in by Messrs.

D. & T. Stevenson, in memory of their father, the constructor of the Bell Rock Lighthouse; and the next in order being that at the north-east corner looking down High-street, has been taken in hand by ex-Provost Law. The designs for all these have received the approval of the committee, and are now in course of execution.

St. Giles's, Reading.—A number of the friends of the Rev. C. H. Travers assembled in St. Giles's Hall, Reading, for the purpose of presenting to him, on his resignation of the vicarage of St. Giles, a memorial window, which had been erected in that church. The window has been executed by Messrs. Clayton & Bell, of Regent-street. The design is of the Decorated period of architecture, and in the fan-lights are figures of SS. John, Peter, Paul, and Timothy. In compartments beneath are representations of the Administration of Baptism, Holy Communion, Solemnisation of Matrimony, and the Burial of the Dead.

Petworth Church.—A stained-glass window has just been placed in the chancel of this church, to the memory of the late Mr. W. Morris. The subjects are, "Peter and John at the Beautiful Gate of the Temple," and "Peter raising Dorcas to Life." Above and below the subjects is thirteenth-century canopy work, the details of which are from old examples. In the tracery-piece above there is introduced a group of angels holding a scroll, on which is written, "Come unto me and I will give you rest." The work has been carried out by Messrs. Heaton, Butler, & Bayne, of London.

SCHOOL BUILDING NEWS.

Lurgan.—The Watts Intermediate School has been erected on a commanding site adjacent to this town. The buildings comprise schools, containing accommodation for sixty day-scholars and twenty boarders, together with residence for the head master. In addition to this, and in compliance with the terms of Mr. Watts's trust, there are also a residence and the necessary offices for a teacher of agriculture. The buildings have been erected with red brick, with Dumfries sandstone dressing, and the style adopted is a treatment of Gothic used in some of the old grammar-schools in England. The schoolroom has a porch, with groined ceiling, supported by moulded stone ribs, springing from carved bosses, and above this rises a tower, having a spire containing a belfry, and terminated by a wrought-iron finial. The windows are divided into triple lights by stone mullions, enclosed by a relieving arch. Over the pointed doorway of the school porch there is a stone canopy enclosing a shield, on which it is intended to engrave the title of the school and the arms of its munificent founder. The large dormitory above the schoolroom is lighted by dormer windows, with double cusped lights on both sides. The principal gable of the master's residence is terminated by a carved owl. The interior joiner work is of selected pine, varnished. Altogether, the sum expended on the edifice is about 3,000*l.* Messrs. Young & Mackenzie, Belfast, were the architects, and Messrs. Collen Brothers, Portadown, were the contractors.

Gnosall.—The opening of new schools in the chapelry of Knightley was made an occasion of great interest by the inhabitants generally. The little structure is from a design by Mr. Barratt, of Eccleshall, architect, and contains porch, class-room, and schoolroom; the latter is 28 ft. by 18 ft., and the classroom 15 ft. by 15 ft. The porch is inlaid with encaustic tiles, and the rooms are heated with open fireplaces. The building is of a Gothic character, built with white bricks and blue bands. Both exterior and interior are neatly finished, and the builder was Mr. Samuel Addison, of Gnosall. In the evening upwards of 200 sat down to tea, and Major Hargreaves briefly addressed the assembly, congratulating them on the completion of the work which had been achieved by their liberality.

Morley.—The foundation-stone of a new school, in extension of the existing accommodation at St. Peter's Church School, has been laid at Morley, by the Earl of Dartmouth. The present church school in Morley, calculated to accommodate 229 children, is attended at present by 300, with an average attendance of 230. More accommodation is urgently required in the district, notice to provide which has been given by the Education Department, and the new building will meet the requirements of the Department, and will for the present prevent the necessity for the formation of a school board. The new building will be a plain structure, in the late Gothic style. It will consist of school-room and two class-rooms, and will give accommodation for 230 children. The site of the building, which is situated in Victoria-road, has been presented by the Earl of Dartmouth. The cost of the erection is estimated at over 1,000*l.*

Wittersham.—New national schools have been opened here, and the occasion was made a general holiday in the village. The site of the schools is a healthy one, near the church, and was given by the Rev. E. H. Sladen, lord of the manor of Wittersham. The foundation-stone of the schools was laid on the 20th of May last, by Mrs. Hadden Parkes. The style of architecture is mixed Gothic. Accommodation for 173 children is provided by a room 51 ft. 6 in. by 20 ft. 4 in. to be used as a mixed school; a room for infants 20 ft. 6 in. by 20 ft. 6 in.; and a class-room 20 ft. 6 in. by 18 ft. 6 in. A master's residence adjoining is in course of erection. The contract price was 1,247*l.* for the schools, with 105*l.* for cartage, which latter item was saved by the work (250*l.*) for the master's house. Mr. A. A. G. Colpoys, of St. Leonards, was the architect, and Mr. James Holt, of Stone, Oxney, the builder.

CHURCH-BUILDING NEWS.

Cambridge.—St. Luke's Church, at Chesterton, a suburb of Cambridge, has been consecrated by the Bishop of Ely. The building has been raised at a cost of 4,500*l.* The reredos is a gift of the Rev. C. E. Graves.

Radcliffe, Lancashire.—Building operations were commenced in connexion with the erection of the new church of St. Paul, at Black-lane, Radcliffe, on Thursday, the 5th inst., a certain amount of ceremony having been observed on the occasion of cutting the first sod. The church is to be a substantial stone structure in the Early Geometric style, and will accommodate 500 persons. Its arrangement consists of nave, with apsidal chancel, transepts, passage aisles, vestries, baptistery, tower and spire at the north-west angle, and south porch. Mr. G. Napier, of Manchester, has undertaken its erection and completion at a cost of about 5,000*l.*, in accordance with a design prepared by Mr. John Lowe, of Manchester, and selected in open competition. Mr. Lawrence Hall has generously contributed 3,000*l.* towards the cost of its erection.

Ash Priors.—The parish church of Ash Priors has been opened for divine service, after a restoration in which the professional assistance of Mr. J. Houghton Spencer, of Taunton, architect, was engaged, and the whole of the works have been carried out from designs, and under the personal supervision of that gentleman. The chancel, which was previously very shallow, has been lengthened, and a vestry built on its south side. The old north doorway, which for many years has been blocked up, has been re-opened, and a porch added; this will for the future form the principal entrance. The gallery, which hitherto completely obstructed the tower arch and western window, has been taken down, and the ancient high pews have been removed. The roofs are new throughout being open-timbered and moulded; the walls have also in many places been rebuilt, and strengthened by buttresses on the outside. Many of the windows are new, and so is the western doorway of the tower; Hamdon-hill stone being used for the dressed stone-work, and local red sandstone for the other portions. The staircase to the rood-loft has been retained and covered with a stone roof. In removing the plaster from the pier to the north end of the chancel arch a squint was discovered. The seats are of pitch-pine with carved oak ends, accommodation being now provided for about 200 persons. The new reredos, which is formed of Corsham and Ham stone, white lias, and marble, consists of three canopied compartments with stone diaper on each side and below; in the central compartment there is a black marble cross; the Alpha and Omega are carved in stone in the side compartments. The pulpit is octagonal, and built of similar stone and marbles as the reredos; it is supported by a clustered column of Devonshire marble. The chancel is paved with Minton's tiles, and the single-light window on the north side of the chancel has been filled with glass painted by Messrs. Clayton & Bell, of London. The moulding of the seats has been copied from a fragment of one of the old bench-ends, and some of the carving was suggested by a panel supposed to belong to the original rood-screen. The mouldings upon the ribs of the roof, and the crosses at their intersections, were copied from fragments of the old work. The tower has been repaired and painted, and the fourth bell, bearing date 1720, being cracked, has been recast; there are six bells the oldest having the date 1711 upon it. The tenor bell is 3 ft. 2½ in. in diameter, and is inscribed as follows:—

"Unto the Church I ring and call,
And to the grave do summon all."

A chiming apparatus, invented by the Rev. H. T. Ellacombe, rector of Clyst St. George, Devonshire, has been fixed in the loft just under the bells, by means of which the six bells can be easily chimed by one man while it does not interfere with the ordinary way of ringing, when occasion requires. The contractor was Mr. John Spiller, of Taunton. The stone-carving was done by Mr. Frost, and the wood-carving by Mr. Spiller, jun.

Oswestry.—The parish church of Oswestry has been restored and reopened for divine service. Mr. G. E. Street, R.A., into whose hands the work of restoration was entrusted, determined to preserve, as far as possible, the whole of the exterior, restoring the decayed tracery of the windows, but keeping as nearly as possible to the character of the whole work, even where it might be charged with being slightly debased in style. He confined his proposals for considerable alterations to the interior, and directed his efforts mainly to making the church more convenient for the purposes of public worship. To do this it was necessary to take down nearly the whole of the columns and arches, and to re-arrange their lines. By widening the nave and spacing the piers the church, as now rearranged, is a convenient building. Looking at the exterior as restored, and recalling its appearance previously, the new features are, on the north side, a partially renewed transept gable with a pointed window filled with tracery in place of the old circular-headed window. The aisle windows are simply renewed in the old style. The west front shows a new doorway into the nave surmounted by a new west window. Here, again, the form of the window at the end of the north aisle is preserved. It is simply enlarged and renewed in the old style. But the most noticeable improvement in this front is the altered proportion of the nave and aisles, caused by the widening and raising of the former, and the general alteration of the pitch of the roofs. Coming to the south side we find two new gable windows filled with tracery. The east front is the one most strictly preserved, and, with the exception of repairs and finishing of gables surmounted by stone finials, it has only one new window replacing the street-door originally existing. This window is designed to correspond with the other windows on the front. On the south side of this front the new vestry has been built. The works have been executed by Mr. Yates, builder, Shifnal. Mr. Yates has had the misfortune to have his workshops burnt to the ground, and with them were burnt almost the whole of the oak seating for Oswestry Church. Mr. Chapelow has acted as Mr. Street's clerk of the works during the progress of the restoration. The pulpit is executed in Caen stone, with traceried panels of carved work, and is the gift of Mrs. Howell, of Tenby. The font, which is a children's gift, has been executed by Mr. Earp, of London. It has sculptures on its sides of the four Evangelists. The lectern, which is of oak, was carved by Messrs. Rattee & Kett, Cambridge, and was the gift of Mrs. Gwynne Evans. A small stained-glass window over the south porch is given by Mr. F. G. Baller Swete. There are two compartments, in one of which the Sower is represented, and in the other the Reaper. This window was the work of Messrs. Ballantine & Son, of Edinburgh. Mr. Edward Williams gives a stained-glass window at the chancel end of the church, by Clayton & Bell. In the side compartments are the Old and New Testament Saints praising the Lord, who is represented in the middle. The lighting of the church has been done by Messrs. Potter & Sons, London; the warming by Messrs. Haden & Son, of Trowbridge; the glazing of the windows by Mr. J. Davies, of Shrewsbury. The decorations at the east end of the chancel, which are not yet completed, are being done at the expense of the vicar.

Rotherham.—The Archbishop of York has consecrated the new church of St. Stephen's, Eastwood, Rotherham, in the presence of a large congregation. The church is in the Decorated style of architecture, and consists of nave, aisles, chancel, organ-chamber and vestry, the total

length of the building being 118 ft., and the breadth 56½ ft. The tower at the west end, forming the principal entrance, is unfinished, a further sum of 650*l.* being required to complete it, with a belfry and spire, according to the designs. A turret surmounts the north porch, and contains one of Vickers' steel bells. All the capitals, corbels, and bosses have been carved in natural foliage, by Mr. Henry Ripley. The walls are plastered inside, and tinted French grey; the arches, windows, and wall-plates being relieved by texts and borders of conventional ornament, stencilled in buff, on a chocolate ground. The ornamentation of the chancel is on a more elaborate scale. The gas-brackets and corona are from the works of Messrs. Guest & Chrimes, Rotherham. The fittings throughout are of pitch pine, the seats being on the free and open principle. The cost of the building is about 3,000*l.*

Bungay.—Lying between Bungay and Halesworth there are eight villages called Elmham, dedicated to different Saints, and these have been known from time to time immemorial as "The Parishes." All of these are sparsely populated, and their churches have become more or less neglected and decayed. Two or three, however, have begun to throw off their lethargic state, and have called in the assistance of Mr. Phipson, the architect, to help them. Amongst others, the church of Elmham, St. James. The building consists of a nave and chancel, a south aisle, west tower, and south porch. The roof of the chancel has become very rotten, and this the rector decided to replace with a new roof of massive proportions, with carved braces and moulded principals, cornices, &c. The east gable was carried up, and new copings and cross fixed, and the chancel was laid with Minton tiles, from a pattern made by the architect, introducing the emblem of St. James and other devices. With this example before them, the parish determined to do something to the nave, the aisles, and porch, a work much needed; and these have all had new roofs put on in the place of the rotten framing. The aisle roof is covered with lead, and the nave and porch with green slates. The aisle and porch wall have been partially rebuilt, the windows and doorways restored, and the walls plastered. The church was benched some few years ago, so this was not now required. The works have been carried out by Messrs. Ludkin & Son, of Banham. A new rectory is also being built in the parish, from the designs of Mr. Phipson. The church has been opened.

DISSENTING CHURCH-BUILDING NEWS.

Whitehaven.—The new Congregational Church at Whitehaven has been opened for public worship. The new church is on the south side of Scotch-street, and stands back 15 ft. from the line of house frontage. From the north-east corner of the building rises a Gothic campanile, 110 ft. high, and 14 ft. square at the base. The porch stretches across the front, the roof of which is supported by arches 5 ft. in height, rising from granite columns, with carved caps and bases. Over the porch is a five-light gable-window, with plate tracery. On the right and left of this porch are doors leading to corridors and galleries, the church being entered on either side. About one-third of the way up the length of the building there are two swing-doors. On each side of the pulpit and behind the entrance-doors the pews are raised 4 in. one above the other, making the pewing slightly in the form of an amphitheatre. With the exception of the small end-gallery facing the pulpit, galleries supported by columns have been avoided. The end-gallery is erected principally for acoustic purposes. There are galleries for the Sunday-school scholars and choir over the corridors and vestries. The galleries are opened out to the church by an arcade of thirty-nine pointed arches on coupled marble shafts. In front of these arches is a balcony for the senior scholars. The children can enter their galleries,—the girls on one side, and the boys on the other,—direct from the school. Behind the schoolroom are four class-rooms facing the superintendent's platform; they are separated from the school by folding doors, so that when the doors are open the scholars can retain their seats and take part in the opening and closing services of the school. There are also a large infant school, and a room of similar dimensions for week-night services, a school library, a room for boiling water, a large china closet, heating-apparatus room, and other conveniences. The building is warmed by hot-water pipes. The principal lighting is by sun-burners placed in the ceiling. There is accommodation on the ground-floor for 510 worshippers, in the end gallery for 134, and in the side galleries for 208. The dimensions of the building are,—across the galleries, 93 ft. 3 in. by 61 ft. 1½ in.; ground-floor, 79 ft. 3 in. by 44 ft. 7 in. The main school is 39 ft. 4 in. by 32 ft. 6 in.; the infant school, and the room for week-night services, each 38 ft. by 21 ft. 6 in. The elevation in front of the church is built of red sandstone from St. Bees, with dressings of stone from the quarries at Tallentire. The site was placed at the disposal of the congregation by Messrs. J. & W. McGowan, of Whitehaven; and the building is from a design by Mr. T. L. Banks, of London, architect, under whose personal superintendence it has been erected. The total cost, including the site, was originally estimated at 8,300*l.*, but this estimate has been exceeded. The debt upon the building at present is 3,000*l.*, but active measures are about to be taken by the congregation to clear this off. The following were the contractors:—Masons' work, Mr. Geo. Tarrentine, Whitehaven; cement and concrete, Messrs. Drake & Co., London; carpenter and joiners' work, Mr. William Young, Whitehaven; slating, Mr. Thomas Mandle, Maryport; plumbing, Mr. William Holloway, Whitehaven.

Gloucester.—The portion of Tyndale Chapel now being erected includes the chapel and the vestries. The chapel will ultimately seat 750 adults; but for the present it is divided into two parts by a cross wall, the nave alone forming in the meantime the chapel, with accommodation for upwards of 500 persons, and the transepts and cross being provided with a temporary ceiling, and fitted up as a school or lecture room. The style of architecture is Early Gothic, the walling being of Painswick stone, lined with brick. The principal entrance is opposite Barton-street, and consists of a recessed doorway with moulded jambs and arch, in the gable over which are three traceried windows. The side elevations have buttresses dividing double-light traceried windows with gables over the heads of each. The transept gables are occupied by large windows. A ventilating flèche, rising from the centre of the main roof, is a prominent feature of the design. The roof internally is open framed and of one span. The floor is seated with chairs, the end gallery, over the front entrance, with open benches. The total of the buildings now in course of erection will be, exclusive of the land, 2,800*l.* The architect is Mr. James Tait, of Leicester, and the contractor, Mr. Meredith, of this city.

The Royal Aquarium and Summer and Winter Garden Society.—At the first general meeting of the shareholders of this company, held on Saturday, at Westminster Palace Hotel, the chairman (Mr. H. Labouchere) said, the meeting had been convened to comply with the Act of Parliament, which obliged every joint-stock company to hold a meeting of the shareholders within four months after registration of the company. Many shareholders might question the delay in not commencing the building; but the delay was attributable to the negotiations between the solicitors during the vacation upon the subject of the title. The company had paid 20,000*l.* on account of the purchase, and had taken possession of the land. The balance, 30,000*l.*, would stand over for two years, at 5 per cent. interest. The next point the committee had considered was the building, and it was no light task. There was the naturalist, Mr. Lloyd, of the Crystal Palace aquarium; there was the winter garden; there was the musical department; and lastly, there was to be considered the general effect of the whole thing in one building. Mr. Bedborough, the architect, had been instructed to make plans combining all the requirements of the society, which plans were on the table, for the inspection of any shareholder. The committee had now to ascertain at what cost those plans could be carried out, and the shareholders might rely on the committee exercising their best judgment and economy in the selection of tenders. It was the opinion of the architect that the entire building would be finished in nine months, and would cost about 65,000*l.*

Evesham, Worcestershire.—The Sanitary Committee of the Town Council of Evesham have instructed Messrs. Gotto & Beesley to prepare plans for the drainage and water supply of the borough.

VARIORUM.

At this period of the year a number of publishers, of whom we hear nothing at any other time, becoming for the once enterprising, send us, one a shilling annual, another a shilling scribbling-book, or a sixpenny almanac, and so on, and request severally "a prompt and friendly notice in our valuable columns." With our best compliments, we inform these gentlemen that on application at our new publishing office, No. 46, Catherine-street, they may learn the terms on which their works can be advertised.——*Public Health* has some observations on "The Law's Delays in Sanitary Matters":—"A more summary method of procedure is eminently needed in sanitary cases. No proceedings can be initiated until they have been authorised by the local authority. Summonses are never made returnable in less than a week after being granted, however dangerous to health the nuisance may be. An unreasonable amount of time is generally allowed for the abatement of nuisances, even in cases capable of immediate remedy. Difficulties are sometimes experienced in serving notices upon the proper parties, and, if a defendant proves recalcitrant, the same weary round of proceedings may have to be recommenced; while, if cumulative penalties are incurred by default, the magistrates rarely inflict more than a nominal fine. In no case can they be induced to inflict the diurnal penalty unless proof is forthcoming, by daily inspection, of the continuance of the nuisance, although it is often most difficult to obtain entrance to the premises in such cases, and although at intervals, when entrance is obtained, the nuisance is found to be unabated."——The *Engineer* speaks of Belgian competition in the iron trade:—"Mr. Richard Johnson, the president of the Manchester Chamber of Commerce, added point to his recent warning to that Chamber upon the extent of foreign competition, by stating that his firm had bought girders from Belgium for 3*l.* a ton less than they could get them at from the English makers. If 'girders' in this case mean what in the Price Current we are discussing is meant by that term, then the fact should not occasion surprise; for girders in this list mean what we infer to be flanged plates shaped so as to somewhat resemble double T-iron. Such iron, which the list terms 'girders,' may certainly be had at lower prices than it could be supplied at by English makers. Not so, however, plates of other than the unusual dimensions which the Belgian mills can more generally produce than can the English mills. Plates,—termed in the Belgian Price Current 'thick sheets,'—and that could successfully compete for quality with Belgian No. 2, can be rolled in the Cleveland district and sold in London at the present time at from 25*s.* to 30*s.* under the Belgian prices. In bolts and nuts, and in tin plates also, we can well beat the Belgians. In wire nails, which they were the first to bring out, the Belgians have always had the advantage; and in wrought nails, if their quality could only be relied upon, the Price Current shows that, money for money, we cannot equal them in the advantages they offer. That, however, they are seeking to be level with us in quality also would appear from this, that they offer a patent wrought nail which they term 'Imitation Ewbanks.'"——The *Lancet* of this week contains a special report on the sanitary condition of Epping, which town and rural district appear to vie with Over Darwen, in the matter of cesspools, pigsties, foul water-courses, and other circumstances calculated to provoke disease. The report describes the town and district as without pure water of any kind, all that is used being obtained from wells fed with surface water, and in close proximity to cesspools, or from ponds into which the house sewage must constantly find its way. There is no medical officer of health, scarlet fever is now rife in the district, and during the past six years there have been 500 cases of typhoid fever. Mr. Joseph Clegg, a medical practitioner in the town, who gave evidence before the Royal Sanitary Commission on this subject in 1869, has recently addressed the president of the Local Government Board, asking him to issue a *mandamus* to compel the sanitary authority to do its duty by utilising immediately the new works.——Beeton's "Penny Book of Cab-Fares" names 35,000 fares, conveniently arranged for reference.

Partnerships.—Law proceedings have been taken to settle differences between the members of the firm, Lanyon, Lynn, & Lanyon, architects, Belfast.

Miscellanea.

Lead Poisoning.—Public attention is, we are glad to see, being once more directed to the danger resulting from the use of leaden pipes for water conveyance. That lead poisoning is common when ordinary precautions are neglected is not to be doubted, and only a persistent exposure of the evil of using lead cisterns and, under certain conditions, leaden service-pipes will ever remove the evils. If leaden pipes were only in the conveyance of water from springs to proper cisterns, and the water were to flow in them continuously without plugs or stopcocks, the danger would be trifling. But when water is brought in leaden pipes from a distance of 40 ft. and upwards, and allowed to remain in a leaden cistern until required for culinary purposes, cases of colic, constipation, and insidious lead poisoning, are but too apt to follow after a lapse of time. If the water be sluggishly drawn from a long distance in lead pipes with very little fall, similar evils will be engendered. It is also upon record that, when water at a high temperature is transmitted through leaden pipes, the corrosion of the pipes will be enhanced. Moreover, if the water conveyed in the lead pipes be charged with salts of iron, as is frequently the case, soluble salts of lead will be produced, and persons making use of the water for drinking will certainly suffer from lead diseases. The same galvanic action sometimes ensues when iron rust from the mains gets into a service-pipe of lead. Even when leaden pipes are led over the house from the boilers of kitchen fires, the rust in the latter will produce this corrosion, and consequently affect the water for evil. Another frequent cause of lead poisoning results from allowing the suction-pipes of wells containing drinking-water to be made of lead. These pipes dip frequently to within a foot of the bottom of the well, and when taken up,—seldom, unfortunately, except from old age,—they will be found to be coated outside and inside with carbonate of lead, and to be very much corroded. Lead colic has been traced to the use of a bucket fashioned out of an empty white-lead keg. If pipes of lead are used for the dispersion of the water to various parts of the household, as is commonly the case, at such places where the pipes are sharply bent, corrosion will especially manifest itself. The same excessive amount of deposit will also be discoverable where solder joints and metal stopcocks are in contact with the lead. When mortar or plaster falls into a lead-lined cistern, or is carried into a leaden pipe, corrosion also rapidly follows.—*British Medical Journal.*

Fatal Accident at Keble College Chapel, Oxford.—A shocking accident occurred at the works in connexion with the new chapel which is being erected at Keble College, by which Mr. Breathwitt, the clerk of the works, was instantly killed. A steam-winch has been in use from the commencement of the building to hoist the materials to the highest scaffold, and the workmen have been in the habit of ascending by the same means. Mr. Breathwitt, seated in a wheelbarrow, had been raised to the topmost scaffold in the interior of the building, when, instead of waiting until the barrow could be steadied by one of the men, he attempted to get out unassisted. The barrow immediately swung away from the scaffold, and the unfortunate man fell headlong to the ground, a distance of 70 ft., his head and shoulders striking on the edge of a large stone. He was picked up frightfully mutilated and quite dead.

Hydrants in the Metropolis.—The official Water Examiner says in his last report,—"The number of miles of streets which contain mains constantly charged and upon which hydrants could at once be fixed, in each district of the metropolis, are as follow:—Kent, 80 miles; New River, 168; East London, 70; Southwark and Vauxhall, 100; West Middlesex, 66; Grand Junction, 41½; Lambeth, 90; Chelsea, 50; making a total length of 665½ miles, and the water companies are ready to affix hydrants thereon when required by the authorities. The total number of hydrants erected is at present only 2,523, of which about 2,000 are for private use, and 267 for street watering."

Collapse of a Railway Tunnel.—The Marple Tunnel, on the Manchester, Sheffield, and Lincolnshire and Midland Railways, collapsed, on Saturday last, for about 15 yards. One man was killed and three injured.

The New Observatory, Oxford.—The new University Observatory in the parks, at the back of the museum, which is being erected from the designs of Mr. Charles Barry, is making progress. It is in the Italian style of architecture, and the bricks used are the best white Suffolk make. The local papers say the principal part of the building extends from east to west, and is flanked by two square towers 21 ft. in height. The western tower (the Savilian tower) will consist of three stories, the first at an elevation of about 3 ft. above the adjacent turf, a room for the calculators, and a dome for receiving the great equatorial of 12.25 in. of aperture, now constructing by Grubb, of Dublin. The eastern tower (the De la Rue tower) will have only two stories; in the lower will be placed the machine employed by Mr. De la Rue for making and polishing his mirrors, as well as the apparatus of Foucault for the verification of their optical qualities. On the first story, on the same floor, with a work-room for the Professor, a room will be prepared for photographic operations. Lastly, the tower will be surmounted by a revolving dome, for the protection of the reflecting telescope with which Mr. De la Rue has made all his observations. The building to which these two towers are united is to contain a meridian telescope of 4 in. of aperture (0m. 10), with 5 ft. of focal distance; an altazimut, by Troughton & Simms, divided in circles of 18 in. (0m. 45) in diameter, and which, being fixed in the meridian, may serve as an instrument of a height for the instruction of students; and also a reflecting telescope of 13 in. (0m. 32) in diameter. The apparatus, constructed with one of Mr. De la Rue's mirrors, and mounted as an altazimut, will be placed opposite a window large enough to allow observations of the stars an hour before or after their passage at the meridian.

The Sanitary State of Villages.—A paper was read at a recent meeting of the Farmers' Club, at the Salisbury Hotel, London, by Mr. James Howard, of Bedford, on "The Sanitary Reform of Villages." Concerning the scarcity and impurity of the water-supply in the majority of our villages, Mr. Howard said that the fault lay in the neglect and wastefulness of the community. The abundant natural supply could readily be economised in wells or tanks according as the nature of the district would permit. On the subject of labourers' dwellings, he observed the provision of adequate accommodation for the agricultural population was a question of great interest. He had recently built a block of six cottages entirely of concrete, which rendered them warm and dry. There were three bedrooms in each, and the cost of the whole was about 600*l.* Passing on to the consideration of the sanitary laws, Mr. Howard noted defects, chiefly in the provisions affecting water-supply, sewerage, over-crowding, and infectious diseases, and suggested the granting of greater powers to local authorities to enable them to arrest evils more promptly. Concluding with a reference to the labour question, Mr. Howard, without being an alarmist, thought sanitary reform, improved dwellings, and beteer treatment at home, were the surest means of disenchanting the English farm-labourer of the allurements of emigration agents. A discussion took place on various reforms suggested in the paper.

New Sanatorium for the Insane.—About eighteen months since a new sanatorium for the insane was commenced at St. Ann's Heath, Virginia Water. It is now being roofed in, and it is expected that it will be completed in another year. The materials used are Portland stone for the dressings, and Suffolk and Reading bricks for the plain wall surfaces externally. The building is approached from the two main roads surrounding the side through lodges and entrance-gates of wrought iron. The principal lodge is for a visitors' entrance, and the main drive up to the building is through grounds laid out and planted. The terrace will be about 1,000 ft. in length. This building being intended for a sanatorium for the insane of different classes in which no patient will be allowed to remain for a longer period than one year, is planned differently from any existing edifice used as an asylum for the insane.

Pure Architects.—Sir: The drawings for the new schools for the village of Arlesey, which is about two miles from Hitchen, are prepared by Mr. Sherlock, of Hitchin, auctioneer, &c., architect, &c., and agent for Moule's earth-closets. They were selected in an open competition of fifty.—O.

Belfast Architectural Association.—A meeting of this Association was held last week, at the Museum, Mr. Robert Young occupied the chair, and Mr. F. W. Lockwood read a paper on "Architectural Style." The lecturer, after addressing the younger members, applied to the practising architects to give their encouragement and assistance at the meetings of the Association. He then traced the history of the chief styles of architecture, showing that these always grew out of the special arrangements and were adapted to the necessities of each particular time, and that we must follow the same principles now. Our architecture must be suited to the new requirements of the age, and be based on all the scientific knowledge of modern times; we must beware of merely copying the forms of the past age, but must learn the great principles which are to be found in the good art of all periods. By honestly making use of every modern invention, and designing shops, warehouses, factories, and public buildings, with special reference to the purposes they were intended to serve, and which purposes have never been known before, we should thus succeed in working out a new style of architecture quite distinct from any of the preceding ones. If they were all earnest and intelligent in their studies the architecture of England might yet once again become the glory of Europe.

Progress of Barrow-in-Furness.—The Mayor of Barrow (Mr. J. T. Smith), at the recent annual meeting of the Town Council of the borough, submitted some interesting statistics illustrating the progress of the town. In 1871 the population of the borough was 18,200. The Corporation had just had the census taken, and had verified this census return to a considerable extent by again going over the more crowded parts of the town, and from that the population was within a trifle of 41,000 people, having more than doubled within three years, the figures showing an increase of 127 per cent. The number of deaths during the year had been 940, which on a population of 41,000 represented a death-rate of 22·92 per thousand. In 1871 there were 2,719 inhabited houses, and now there were 5,600, making an increase of 2,881, or 105·95 per cent., and beyond this there were now 920 houses in course of erection in the borough. The rateable value of the town in 1871 was 63,894*l.* 15*s.*; and now it was 123,117*l.* 10*s.*, making an increase of 59,222*l.* 15*s.*, or 92·68 per cent.

Oxford Architectural and Historical Society.—The Saturday walks and excursions will be resumed. On Saturday, November 21, Culham and Abingdon are to be examined. At St. Helen's Church, Abingdon, the restoration of which is now complete, the carved oak rood-screen is probably the finest in the diocese. Before leaving Abingdon, it is proposed to visit the new Wesleyan Chapel, now in course of erection from designs by Mr. W. H. Woodman, in the Gothic style. It is well spoken of. At Culham Church, the Vicar will meet the party. Saturday, November 28th, will be devoted to St. Mary Magdalen Church, St. Michael's Tower, and Mediæval Cellars in Oxford. In consequence of the thorough restoration of the interior of the church of St. Mary Magdalen, and the structure of the walls being clearly visible, it has been thought well to take the opportunity of visiting it. Mr. W. W. Wilkinson is the architect, and will explain the points of interest. It is proposed next to visit St. Michael's Tower, which is of the eleventh century, and where also the work of restoration is in progress, under the direction of Mr. Bruton, architect, who will meet the party.

An Escape.—The perils that beset building workmen are as great as the dangers of the sea, for whilst the seamen have time for prayer, the landsmen are launched into eternity without warning. Last week, a number of bricklayers were piling bricks at the engine-works in Chester-le-street, when the staging covering a deep well gave way, and one man, Thomas Murray, was precipitated to the bottom, a great depth, and about a ton weight of bricks fell with him. Three other men contrived to escape by clutching a pipe. Nearly an hour elapsed before the man at the bottom could be reached, and to the surprise of all he was found alive and rescued, although seriously hurt. The marvellous escape of all concerned had such an effect that the whole of the men on the works knelt down in silent prayer, and did not resume work until next day.

"Papers" at the Institute.—The following papers have been promised, and will be read, subject to such arrangements in regard to date as circumstances may require:—"The Hope of English Architecture," by W. H. White, Fellow, December 14th; "On the Restoration of the Lodge at Sheffield Manor," by C. Hadfield, Fellow; "On Public Abattoirs," with special reference to one lately erected in Manchester, by A. Darbyshire, Fellow, February 1st; "On the Temple of Diana at Ephesus," by J. T. Wood; "On Iron, as a Constructive Material, by C. H. Driver, Fellow; "Notes on Ancient and Modern Work in Egypt," made during a recent Tour, by Professor T. H. Lewis; "On the Decoration of Roman and Byzantine Basilicas," by R. P. Pullan, Fellow.

London Anthropological Society: Iceland.—At the last meeting of this Society, on the 13th instant,—Dr. Charnock, F.S.A., President, in the chair,—Professor Leitner, Principal of the Government College, Lahore, exhibited some interesting curiosities from Iceland, Greenland, and the Faroe Islands. One result of his tour was, the reading of the inscription of the brass font at Struna Church, which had been given up by Danish and Icelandic antiquaries, but which was simply "*Rathe wis tyne bi*;" or, "Success be with thee,"—a salutation addressed by the angel Gabriel to the Virgin Mary. It probably came from Lübeck in the fifteenth or sixteenth century. Similar inscriptions existed elsewhere, of which Professor Leitner took rubbings.

Industrial Dwellings.—On the 13th inst., the row of houses facing the workhouse in the Farringdon-road, which have been erected under the name of the Farringdon-road buildings by the Metropolitan Association for the Improvement of the Dwellings of the Industrial Classes, were visited by the Right Hon. R. A. Cross, Secretary of State for the Home Department. Among the other gentlemen who were present were Lord Claude Hamilton, M.P., and Mr. Julian Goldsmid, M.P., directors of the association; Mr. Chancellor, architect; Mr. Janson; Mr. C. Gatliff, secretary, &c. The buildings are constructed in five blocks, of great height, each containing seven stories, including the sub-basement. We will give some precise particulars hereafter.

The Society of Arts.—The following arrangements for the Wednesday evenings before Christmas have been made:—Nov. 18, Opening Address, by Major-General F. Eardley-Wilmot, R.A., Chairman of the Council. Nov. 25, "On School Buildings and School Fittings," by Mr. T. Roger Smith. Dec. 2, "On the Expediency of Protection for Inventions," by Mr. F. J. Bramwell, F.R.S. Dec. 9, "On the Protection of Buildings from Lightning," by Dr. R. J. Mann. Dec. 16, "On the Sandblast and its Application to Industrial Purposes," by Mr. W. E. Newton.

Tenders for Road-making.—The Metropolitan Board of Works have received tenders for the formation of carriage and foot ways, with other works in connexion therewith, in Wilderness-row, between St. John-street and Goswell-road, Clerkenwell. There were nine tenders, as under:—T. Turner, 5,900*l.*; Pearson, 5,493*l.*; Nowell & Robson, 4,745*l.*; Stephen Carey, 5,175*l.*; W. Webster, 5,400*l.*; Knight & Son, 5,390*l.*; Coker, 6,000*l.*; Mowlem & Co., 5,300*l.*; Griffiths, 4,760*l.* 12*s.* The tender of Mr. Griffiths for 4,760*l.* 12*s.* was accepted, although not the lowest tender.

Utilising Waste Products.—Mr. W. McAdam, of Glasgow, has patented some improvements in utilising waste products of chemical works for constructing bricks or blocks for building or analogous structural purposes. The feature of novelty which constitutes this invention is the employment of chrome waste, in combination or admixture with the soda waste or potash waste, for the manufacture of bricks or blocks for the building or analogous structural purposes.

Bricks and Tiles.—Mr. J. Atkinson, of Great Lever, near Bolton, has patented an invention the object of which is to render the surface of bricks and tiles impervious to atmospheric influences. "In performing my invention I prepare a solution of common soil and oxide of lead or other metal, combined with colouring matter if necessary; the solution so prepared is applied to the surface of the brick or tile when dried, but before being burnt."

Dwellings of the Poor and the Metropolitan Board of Works.—At the last meeting of the Board it was resolved, "That this Board agrees with the opinion expressed by the Chairman in the House of Commons on the 8th of May—That it is urgently desirable that the dwellings of the poor should be improved, and will give its best consideration to any measure that may be introduced by the Government for the purpose of effecting that object."

The Institution of Civil Engineers.—At the first ordinary meeting of the new session, held on the 10th of November, Mr. Thos. E. Harrison, President, in the chair, the paper read was on "The Nágpûr Water Works; with observations on the Rainfall, the Flow from the Ground, and Evaporation at Nágpûr; and on the Fluctuation of Rainfall in India and in other places;" by Mr. Alex. R. Binnie, C.E.

The Manchester Corporation propose applying to Parliament in the ensuing session for powers to extend their waterworks, to carry out a number of local improvements, and to equalise rates in the various townships into which the city is divided. It is necessary under the Borough Funds Act, passed two sessions ago, that before going to Parliament the Corporation should obtain the consent of the ratepayers in public meeting assembled.

Sydney.—Some time ago the Jewish congregation of York-street, Sydney, having decided to erect a new place of worship on a site in Macquarie-street, a premium was offered to some of the principal architects of New South Wales for competitive plans, and, after careful consideration, those of Mr. Thomas Rowe were selected as the most suitable. Tenders in accordance with the plans and specifications having been opened, the lowest in amount was found to be about 16,000*l.* The style of architecture is Romanesque.

Artificial Leather.—By the invention of Mr. C. Muratori, of Burton-crescent, any cotton, linen, or cloth fabric is immersed for four days in a bath of alum and muriate of soda dissolved in water. It is then dried and immersed for a few minutes in a second bath composed of waste glove-leather dissolved in water. The fabric is then treated in the same manner as ordinary leather after tanning.

Taking it out of Them.—It was admitted, at a recent meeting of the Bethnal-green Board of Guardians, that there are six inmates of the workhouse, all over seventy years of age, who are employed in the engine-room regularly from four o'clock in the morning till ten o'clock at night, stoking, and that a pint of beer each, which had been allowed them because of the heavy work, had been recently discontinued.

St. Michael's, Cornhill.—This church, which is amongst the most interesting in the City of London, has been re-opened after having been closed for some time in order to undergo thorough renovation and repair. The work has been executed by Messrs. Trollope, from designs furnished by Mr. C. Reilly, the standing architect of the parish.

The Lord Provost of Edinburgh has obtained the contract for the proposed new bridge across the river, the railway station, the tunnel under the park, and other works connected with the new railway at Sunderland. The highest tender was 270,000*l.*, and the one accepted from this Scotch firm is for 219,000*l.*

The Beaufort Chapel, Windsor.—The paragraph in our last (p. 956) headed "The Beaufort Chapel, Badminton," should have stood The Beaufort Chapel *and* Badminton: the chapel, described as being restored, is in St. George's Chapel, Windsor.

Wood Pavement in Regent-street.—The tradesmen and others residing in Regent-street are desirous that the thoroughfare should be laid with wood pavement, and are taking steps accordingly. At the meeting of St. James's Vestry last week, a memorial, signed by a large number of the most influential inhabitants, was presented by a deputation, who addressed the vestry in favour of the proposal.

TENDERS

For the erection of two houses at Harrow for Mr. W. Winkley. Mr. J. O. Scott, architect:—

Kindell	£2,116 0 0
Braid, Jopling, & Co.	2,300 0 0
Pratt	2,325 0 0
Smale	2,699 0 0

For extra works at Ridgeway Oaks, Enfield. Mr. Thomas J. Hill, architect:—

L. & W. O. Patman	£495 0 0
Bentley (too late)	398 0 0
Freeman & Sons (accepted)	333 9 0

For two warehouses, Redcross-street. Mr. Coutts Stone, architect:—

Hockley	£5,949 0 0
Thomas & Sons	5,575 0 0
Mark	5,178 0 0
Nightingale	5,125 0 0
Crabb	5,000 0 0
Elkington	4,880 0 0
Shurmur	4,842 0 0
Merritt & Ashby	4,798 0 0
Perry & Co.	4,760 0 0
Bangs & Co.	4,689 0 0
Scrivener & White	4,540 0 0

For house and stables for Mr. H. C. Forde, at Wimbledon. Mr. John Nicholls, architect. Quantities by Mr. W. H. Barber:—

	House.	Stables.
Patman & Fotheringham	£5,998 0	£1,395 0
Simpson & Son	5,895 0	1,390 0
Nixon & Son	5,564 0	1,283 0
Nightingale	5,390 0	1,216 0
Adamson	5,225 0	1,160 0
Bull & Son	5,030 0	1,193 0
Herman	4,913 0	1,243 0

For the extension of the Promenade Pier at Blackpool, Lancashire, for the Blackpool Pier Company. Mr. E. Birch, engineer. Quantities supplied by Messrs. R. L. Curtis & Sons:—

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Kirk & Parry	15,7[illegible] 0 0
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Phillips	13,446 0 0
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W. & P. Crouker	3,719 0 0

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